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JOHN HUNTER THE OBSERVER*

BY

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John Hunter was born in 1728 at Long Calderwood, a small estate in Lanarkshire seven miles south of Glasgow, near the village of East Kilbride. He was the last of ten children, of whom seven survived childhood. Of them James, fourteen years his senior, entered medicine and joined his brother William in London, only to end from phthisis a career of brilliant promise at the age of 29. William, ten years the senior of John, was for five years a student at Glasgow, and at first was destined for the ministry. When he was 19, however, he joined Dr. William Cullen, who at the age of 27 had a busy practice at Hamilton, near Kilbride. They must both have been young men of enterprise, for they arranged that in each winter one of them should study medicine in Edinburgh or Glasgow while the other carried on the practice. In 1740 William Hunter attended Alexander Morris's lectures in Edinburgh, and in 1741, at the age of 23, he made up his mind to seek his fortune in London. Cullen went to Glasgow, where he became Professor of Medicine; but a few years later he moved to Edinburgh, occupying successively the Chairs of Chemistry, Institutes of Medicine, and the practice of Physic, and left a high reputation as a lecturer renowned for the clearness of his exposition.

William Hunter lived at first in London with Dr. William Smellie, another Lanarkshire man and a friend of William Cullen's. Smellie had settled in London at the age of 42 after studying in Paris, and was just entering on a distinguished career in midwifery. He gave lessons in the art, using a real pelvis lined with leather for practical demonstration, and he was one of the first to stress the importance of accurate measurements. William Hunter remained with him only a short time, and became assistant to Dr. John Douglas and a surgeon's pupil at St. George's, where he worked in the dissecting-room. He visited Paris, and it is evident that he made great progress in anatomy, for in 1748 he established his own dissecting-room and advertised a course of lectures.

A Gift from Heaven

It was at this juncture that he was joined by his brother John, a raw red-headed Scottish boy of 20 who had so far given no signs of any ability, who hated books, and who was evidently regarded as the black sheep of the family. To the amazement of everyone he settled down to his new life in the dissecting-room as one born to it. He produced beautiful dissections and delighted his brother William, who was rapidly making his way in the field of midwifery and to whom this unexpected assistance must have seemed a gift from Heaven. At the same time he was a rough customer, and a curious point in his favour was that he was a favourite with the resurrection men, upon whom the dissecting-room was dependent for materials. It must have been a rough place, for all modern antiseptics and preservatives were unknown, and dissection under such conditions was both unpleasant and dangerous and could be carried on only in the winter.

It is worth while pausing for a moment to consider these young men, Smellie, Cullen, and the two Hunters, and the country of their origin. Glasgow itself was only a small town of 15,000 inhabitants, and the corner of Lanarkshire from which they all came must have been primitive in the last degree. Beyond this stretched the Highlands, a country without roads and in a state of barbarism beside which Afghanistan would seem civilized. Moreover, just before this, in 1745, the Highlanders had invaded England in a destroying horde, pillaging Glasgow itself and all the surrounding country on their way. It was such an environment, and not the quiet amenities of a university town, that threw up four of the greatest leaders in the history of medical science.

Hunter's Medical Pupilage

In the summer of 1749 by his brother's influence John Hunter, now 21, became a pupil at Chelsea Hospital of the great Cheselden, now nearing the end of his career. On his death in 1751 Hunter became a surgeon's pupil at St. Bartholomew's Hospital, where Percivall Pott was rising to fame. Finally, in 1754 he returned as a pupil at St. George's Hospital, where he was afterwards to serve as a surgeon for twenty-five years. In 1756 he was appointed house-surgeon, but after five months he gave it up in order to devote his time to anatomy. His interest now extended to the anatomy and physiology of the whole animal world, and he worked from morning to night dissecting every animal he could find. Naturally his health gave way, and in 1760 after an attack of inflammation of the lungs he obtained a commission as staff surgeon in the Army and saw three years of foreign service at Belleisle and in Portugal. His health recovered, and in 1763, at the age of 35, he returned to London and set up in practice as a surgeon in Golden Square.

While waiting for practice he again established a dissecting-room and a school of anatomy, devoting the greater part of his time to preparing specimens and teaching students. In order that he might also study living animals and their functions he took a plot of land "two miles from London at a place called Earl's Court," and there he built a small house in which he could indeed live but which was the centre of a most extraordinary zoo.

*The Hunterian Oration delivered before the Royal College of Surgeons of England on Feb. 14, 1949.

Over the front door was the wide-open mouth of a crocodile. In the garden were many strange animals, including a couple of leopards and a pair of buffaloes which were occasionally put into harness and driven round London. A jackal, a zebra, an ostrich, a young bull, and many smaller animals all lived together in perfect harmony.

It was scarcely an orthodox way to develop a surgical practice, but he was acquiring a vast knowledge of comparative anatomy, and his contribution to this new science was recognized in 1767 by his election, at 39, to the Royal Society. In the same year he ruptured his tendo Achillis, and this irrepressible man not only treated himself successfully on ultra-modern lines but performed a whole series of experiments on dogs to see how tendons united. Next year he was elected a surgeon on the staff of St. George's Hospital, and he now moved to his brother's old house at 42, Jermyn Street. It was a good house, suitable for a surgical practice and into which he could take, as was the custom, a number of pupils in surgery. Among his pupils were several who rose to great distinction, and we find the names of Astley Cooper, Abernethy, Clive, and Edward Jenner. But it must have been a strange house, for already Hunter's one absorbing interest was in his collection. It grew until every available room was filled with strange specimens, dry and bottled, covering the whole animal and vegetable kingdom, whilst in the passage a giraffe appeared to be emerging from the floor below. How a surgical practice could be developed under such conditions is a mystery, but it gradually grew to large dimensions. Practice was, however, always a secondary consideration, and every penny that could be spared went to the collection.

Hunter's Daily Life

Of Hunter's daily life Ottley has given such a perfect description that I cannot do better than to quote it.

"He commenced his labours in the dissecting-room generally before six in the morning, and remained there till nine, when he breakfasted. After breakfast he saw patients at his own house until twelve, when he made a point to set forth on his rounds, even though persons might be waiting for the purpose of seeing him. . . . He dined at four, then the fashionable hour, and gave strict orders that dinner should be ready punctually whether he was home or not. He was a very moderate eater, and set little value on the indulgence of the palate. During many of the later years of his life he drank no wine, and very seldom remained long at table after dinner, except when he had company. After dinner he was accustomed to sleep for about an hour, and his evenings were spent either in preparing or delivering lectures, in dictating to an amanuensis the records of particular cases, of which he kept a regular entry, or in a similar manner committing to paper the substance of any work on which he chanced to be engaged.

"When employed in the latter way, Mr. Bell and he used to retire to the study, the former carrying with him from the museum such preparations as related to the subject on which Hunter was engaged. These were placed on the table before him, and at the other end sat Mr. Bell, writing from Hunter's dictation. The manuscript was then looked over, and the grammatical blunders, for Bell was an uneducated man, corrected by Hunter. At twelve the family went to bed, and the butler, before retiring to rest, used to bring in a fresh argand lamp, by the light of which Hunter continued his labours until one or two in the morning, or even later in the winter. Thus he left only about four hours for sleep, which with the hour after dinner was all the time he devoted to the refreshment of his body. He had no home amusements, no cards, for the relaxation of his mind; the only indulgence of this kind he enjoyed consisted in an evening's ramble amongst the various denizens of earth and air which he had congregated at Earl's Court."

It was about this time that Hunter, at the age of 43, married Anne Home, the daughter of an Army doctor and 29 years of age. She was a woman of great charm and considerable social distinction, the friend of Haydn, Madame d'Arblay, and Mrs. Montague. She was something of a poetess, and wrote the words for Haydn's *Creation* and the song "My mother bids me bind my hair," which in Haydn's setting is immortal. She must have had a difficult life, but she was devoted to Hunter, and her appreciation of his work is shown in her touching epitaph inscribed on his memorial tablet in St. Martin-in-the-Fields. Only two years after their marriage Hunter at the age of 45 had his first attack of coronary thrombosis, and though he made a good recovery the fear of angina shadowed the rest of his life. It only drove him to greater efforts to complete his work, but, whilst his indomitable courage demands our unstinted admiration, perhaps we owe a greater debt than we realize to Mrs. Hunter in the background.

In 1783 the lease of his house in Jermyn Street came to an end, and he bought the lease of a large house on the east side of Leicester Square and a house behind it in Castle Street, now Charing Cross Road. On the ground between the two he built a lecture room and a museum large enough to house his immense collection. In the Leicester Square house were his consulting-rooms, while the Castle Street house was devoted to dissection and the preparation of specimens for the museum. This back entrance must have seen some strange sights, from the visits of resurrection men to the arrival from Earl's Court of the skeleton of O'Brien, the Irish giant, which now stands beneath this very roof. A vast staff was employed, and between the cost of this and the cost of the building Hunter expended on his collection more than £70,000. For two years this extraordinary man lived and worked in these extraordinary surroundings, a constant sufferer from attacks of angina, and in the end, at the age of 65, its victim.

Hunter's Outlook

John Hunter was above all things an observer. He was devoured by a passionate desire to know how things were made and how they worked, and it was typical of the man that he realized that the only way to do this was to look and see for himself. Indeed, he summed up his whole outlook on life in his famous aphorism, "Do not think. Try. Be patient, be accurate." To us who grow from our cradle in a world of laboratories and research it is difficult to realize how revolutionary such a proposal must have seemed to his contemporaries. For most of them all knowledge was contained in tradition and there was something almost indecent in attempts to dissect Nature. To doubt the words of Aristotle was as perverse as to doubt the book of Genesis and was to uproot the foundations of all human knowledge. It is a mistake to suppose that the objection centred only on human dissections and the resurrection men; they went far deeper into resentment at any interference with what were regarded as established facts.

It was through this veil of prejudice and ignorance that John Hunter and his museum tore so completely, and it is this achievement which so amply earns our gratitude. The specimens in his collection are themselves of value, but of greater moment is the lesson they teach us of the value of observation.

The Value of Observation

What precisely do we mean by observation, and wherein lies its value? In a sense every one of us is the product of observation, for each of us is moulded by his reaction to environment. But scientific observation means something more than this. First of all it means inquiry, and inquiry means that we have asked a question. Something

has happened that we do not quite understand and our curiosity is aroused. We try to produce the same event and to follow the train of circumstances which led to it. Then—and it is here that the genius of the observer appears—we modify the circumstances and see the effect upon the result. Nine times out of ten they all fit together into well-known categories, and, though our curiosity is satisfied, that is all. But just once in a while things do not quite fit together, and then if we are fortunate and have infinite patience and persistence we may find a chink through which we may peer into one of Nature's secrets. Let me give you some examples.

In 1785 Henry Cavendish by passing an electric spark through common air succeeded in getting the oxygen and nitrogen, substances with which he was only vaguely acquainted, to combine together to form nitric acid. There was, however, a small residue, less than 1%, of gas left, which he surmised might be a gas of a different nature. A century passed before Lord Rayleigh astonished the world by the discovery of argon, the unknown residue which Cavendish with his primitive apparatus isolated. His observation was perfect, but no means then existed for its interpretation. Yet the observation itself was well worth while. The foundation of a building must be laid before the keystone is placed in the arch.

You are all familiar with the spectrum, that single octave in the vast range of ether waves which we call light and by which we see the world around us. To most of us it is just a series of brilliant colours, but to the physicist it consists of a vast number of narrow lines, each the product of a single length of wave, of a single pure tone in the harmony of light. These lines form definite groups, and each group is the luminous signature of a burning element which by this signature can be identified even in a star a million million miles away. Thousands of these lines had been measured so that their position was known with extreme accuracy, but in spite of endless attempts no connexion between these measurements could be discovered.

In 1885 a little Swiss schoolmaster in Basle named Balmer felt an urge towards research in physics and consulted Professor Hagenbach about what he should do. The professor, with a smile I imagine, suggested that he should find the relation between the measurements of the four principal lines of hydrogen. The wave numbers of these lines—that is, the number of waves in a centimetre—are 15,233.22, 20,564.79, 23,032.54, and 24,373.06.

It did not seem a very hopeful problem, but to the amazement of everyone Balmer returned in a few days with the answer. If you divide all these numbers by 109,677.69 the result can be written in the simple form: (1/4–1/9), (1/4–1/16), (1/4–1/25), (1/4–1/36). Obviously these are only the first four of a series, and since his time fifty more lines have been discovered, each taking its exact place in the series. Moreover, this curious number—109,677.69—is the magic key to the place of every line in every spectrum. It is now known as Rydberg's constant, and with it Niels Bohr, the great Danish physicist, was able to unravel secrets of atomic structure which have revolutionized our whole conception of matter. But it was Balmer who found the key.

In 1900 Crookes devised a toy in which a minute speck of radium was placed in front of a tiny fluorescent screen. On looking through a lens you saw a shower of bright sparks. A young physicist named Rutherford from the backwoods of New Zealand was intrigued by this and took the trouble to count the sparks under varying conditions. They proved to be the key to the secrets of radium and of atomic changes until then unknown, secrets which have already produced the atom bomb and which if they do not destroy us must certainly revolutionize our lives.

Some twenty years ago Alexander Fleming found a spot of mould growing on one of his culture plates, and he noticed that none of the bacteria in culture grew near the mould. Overcoming his natural resentment at such an impertinent intrusion into his laboratory by a mere mould, he studied the intruder and found that it possessed the very remarkable power of preventing bacterial growth. He suspected that this might be due to some chemical substance secreted in the mould, but he had to wait over ten years for this substance to be isolated by Florey and for the discovery of penicillin.

Now in each of these cases the first observation was a simple matter; the genius of the observer lay in his appreciation that there was something here which he did not understand, some new fact outside his experience. He has found a door, but he does not know where it may lead and he cannot open it until he has found the key. But the observation was the first step, and without it the door would never have been found. And the initial observation is often so trivial that for most of us the event would have passed unnoticed and the observation never have been made at all. Think of Cavendish with his primitive globes of gas; the little Swiss schoolmaster with his incomprehensible figures; Rutherford and a few sparks; Alexander Fleming and a spot of mould on a culture plate. Yet each was peering through a tiny window into a new world.

It is, however, only very rarely that the power to make observations and the ability to unravel their meaning are combined in the same individual, or, indeed, that both can be accomplished in the same epoch. As we have just seen, years may elapse between the observation and the full appreciation of its meaning. It was in observation that Hunter was supreme, and, although within the limits of his time he often made acute deductions from his observations, his records are still worth our study as examples of what can be done with little more than unaided eyesight.

The Background of Observation

With such a great example before us I feel that it will be worth while to devote a few moments to consideration of "observation," to see in what it consists, to study its uses, and to examine how such power can be acquired and developed. In a sense our whole lives are spent in observation, for when you come to examine it you will find that our every action is a result of some stimulus and a reaction to environment. But this is not quite what we mean by conscious observation. Surrounded by a vast stream of events, of which fortunately we can appreciate only a minute fraction, we sometimes actively direct our attention to some detail which has aroused our interest. What is involved in such attention and under what conditions can it serve a purpose?

The mere fact that our attention has been attracted shows that something unusual has occurred either in the external world or in its impact on our mentality. It is usually the latter, for Nature is very conservative and rarely allows a variation, but in any case the important fact is that to us the event was exceptional. I suppose that for countless aeons of time men watched the stars stream across the sky before one of these men noticed that one of the stars had moved from its place. But notice that that man himself must have watched the stars for years till their permanent relation was fixed in his mind and he was startled to find that one had changed its place. You can imagine that he kept the secret to himself and watched night after night to see if it were really true. And if he were a wise man the more certain he became the more closely would he guard such a revolutionary discovery.

You see, then, that observation itself demands a background of conscious knowledge. Our first astronomer saw the stars as other men saw them, but with this difference—that up to the moment of his great discovery he realized that they all kept their appointed stations, night after night and year after year. Without that background his observation would have been meaningless; with that background

it was a discovery which marked an epoch. The first essential of all useful observation is, then, a background of established knowledge—that is to say, that on our memories is imprinted a pattern to which events around us conform, arousing our memories, perhaps, but without disturbing the pattern. In most of us the pattern becomes so fixed that variations pass unnoticed, and indeed since events are never exactly repeated such assimilation of variation is essential if the pattern is to remain. But then one day we become conscious of some variation, perhaps because of its insistent repetition. Our interest is aroused and we stir ourselves to active observation.

Curiosity an Essential Factor

Here men are divided into two great groups, the incurious and the curious. Of the causes of the divergence we know nothing; perhaps it is based on some endocrine or nutritional factor; but, however that may be, we all recognize the man to whom discovery is the breath of life and the man to whom it is anathema. The latter is often a first-class teacher who not unnaturally fears the disturbance of his mental categories; the former may be a great researcher but is often entirely unintelligible to his pupils because he can never keep clearly before them the picture they require, since his mind is too fluid. Just occasionally you find the rare mind with a clear picture but a burning curiosity which can inspire the pupils as well as the teacher.

I should say, then, that one essential factor in observation is curiosity. There are many kinds of curiosity, from the mere desire to interfere, with which we are all familiar, to the urge to satisfy some deep longing for comprehension, to resolve a discord in a final harmony. Whatever its true nature it is undoubtedly an instinct essential for fruitful observation and one with which every teacher should seek to inspire his pupils. In John Hunter it was almost a mania, and it was the steady driving force behind all his work.

A background of knowledge, curiosity, and the desire to extend that knowledge are thus essential for fruitful observation, but something more is still required—the training of the power of observation itself. For the mere act of observation is not a simple act but a highly complex process in which many factors are involved, and in the trained observer all these factors are subconsciously combined into a perfect unity, so perfect that its complex origin is concealed from the observer himself.

Each of us is given at birth eyes, ears, and touch corpuscles in his fingers. Over these primary organs of sense we have little influence; fortunately we have little if any power of modifying their structure, and they do not appear to vary greatly from one individual to another. These different organs carry impressions to the nervous matter of the central nervous system and ultimately to the brain, the great central exchange for the correlation and synthesis of nervous impressions. Of how the brain works we know very little, but two facts appear to be well established. After a very early age its cells never divide and therefore never multiply, but they have the power of forming connexions with adjacent cells and of facilitating the passage of impulses by the reduction of the resistance at the synapse where they connect.

Trained Observation

Each of us, then, is provided at birth with sense organs which he cannot modify, and a system of intercommunicating cables along which he can transmit messages but to which he can make no addition. By constant repetition of one system of impulses, however, he can break down resistance at the appropriate synapses so that the message passes freely and without conscious effort. We can in fact develop a trained action or acquire a habit. We can modify or combine the impressions coming in through different channels so that, far from colliding, they reinforce one another and resolve confusion into a single clear, definite picture.

It is only by such training that the power of observation in any field can be acquired, and a few examples will make this perfectly clear.

The artist has trained his eye and his hand so that they work together in perfect harmony, and while he studies his subject you can see his hand already making the movements which will ultimately convey to paper through his pencil what his eye has grasped. Do you imagine that a violinist thinks where to put his fingers? He does not think about it at all, for he knows that his ear and his fingers work together in perfect harmony and that they will give him all that he asks, whether in brilliant cadenza or in subtle tone. And yet the co-ordination demanded in the artist and the musician does not surpass that necessary to the skill of the true clinical observer.

A physician is standing by a child's bedside; his fingers are on its wrist. He feels the dry, hot skin. He notes the racing pulse and estimates its power, its quality, its regularity. He sees the flushed face with its tinge of blue; he sees the nose expanding at each quick intake; he hears the hurried respiration and its characteristic grunt. And he knows that he is faced with a case of acute pneumonia with a certainty which nothing but direct clinical observation can afford. His long experience has gathered together a great number of separate impressions into one clear picture. He is a trained clinical observer, and all his impressions are grouped together subconsciously into one observation which sweeps away irrelevant detail and grasps the one essential fact.

Perhaps I have chosen too simple an example, but the point I wish to stress is the value of trained observation and the great complexity of the factors which are involved in its achievement. I do not in the least degree undervalue the aids which science has placed at our disposal—chemical investigations, microscopical studies, and *x* rays, for example—but all these are details to be assimilated by the observer and brought into the general picture, for without this co-ordination they are all too likely to lead to error.

Even elementary observation is the most difficult thing for a student to learn, and trained observation is only slowly acquired, but it is a power at which every student should aim from the first moment and of which every teacher should enforce the value. For the majority of us visual impressions are the most important, and these can be developed better and more rapidly by attempts at drawing than in any other way. However crude the drawing may be, the mere attempt enforces observation, and the shape of a bone, for example, can in a few minutes be fixed in the memory. The mere fact that one is rousing from slumber tracts in the brain so far unused means an incalculable addition to one's powers. And if one can succeed in arousing by such means a latent curiosity the trained observer is in sight.

The Teacher's Problem

This is the real problem of every teacher—how to teach his students to observe. Great variations in methods are possible, and in no field of action is there greater scope for originality, but at least in a field so complex as that of medicine certain broad lines must be followed.

First of all the student must be shown in detail all the essential elements of the completed picture which he should ultimately retain as a permanent pattern. Most of us are visualists, and only what we have actually seen leaves a permanent impression on our memories. In Continental clinics the lecture-demonstration fills a more important role than it does in this country, and I feel that we might make much greater use of it than we do. I still remember a

demonstration on tuberculosis of the spine given by the late Professor Hotz at Basle. It began with a series of fine pathological preparations showing every stage of the disease, with skiagrams and photographs to show its clinical progress. A little man with an old healed angular curvature then came in, and he was followed by two bed cases, one of paraplegia and one of psoas abscess. In an hour we had been shown a complete picture of the disease so vivid that it still remains to me a living memory after twenty-five years. Such a demonstration involves resources in material and assistance which are rarely available, but can you question their incomparable value?

Next the student must have access to specimens, to microscopical slides, and to patients, so that he may study every detail of the picture at his leisure. In this College we are rapidly building up a pathological museum with this very object in view, where the student will find ready to his hand all the material for training his mind in exact observation which no book can supply. The patient himself must be studied in the hospital, but perhaps we may in the very distant future have even our own clinic for the more advanced study of disease.

With this experience behind him the ward demonstration will take on for the student an entirely new significance. Here the teacher can draw upon his own experience and illustrate the points he desires to stress from the patients around him, while the student is introduced to the human side of observation as distinct from the purely scientific.

Finally, in the out-patient department the art is acquired of rapid recognition of main symptoms and their separation from a confused mass of unimportant details. The student learns to recognize disease at sight, to become in fact the trained observer.

You will see, then, that the mind of the great observer is replete with pictures of definite entities, each a vivid and living reality based on an actual experience. It has been my good fortune to meet some of these great minds who leave so deep an impress on our own personality, and when I mention the names of Harold Barnard, Henry Head, and Wilfred Trotter many of you will be recalled to happy memories. With Barnard every case was an adventure into the world of romance, every specimen a trophy from a voyage of discovery. To Head a small area of increased sensation was an Open Sesame, a slight change in gait the key to deeply seated processes of vital import. The quiet glance of Trotter could penetrate into the subtle instincts which, to us unknown, play so large a part in all our lives. Each was a great observer and each has left for us the golden harvest of what he saw and the gleaming inspiration of his example.

In the ancient world men looked within themselves for knowledge, and for them the world around had little interest. For us a vast field of Nature has been opened of which they knew nothing, and it seems to be as limitless as the heavens. Whether we look down a microscope at a minute organism, or through a great telescope at a nebula a million years of light away, we realize that there is an infinity beyond. But, infinitely small or infinitely distant, it is there for us to see, and it only awaits our observation. All around us are whole worlds for us to see if we will only look, to hear if we will only listen.

> "What does it matter where or how we die
> So long as we have health to see it all—
> The different ways that different things are done,
> And men and women loving in this world?"

Could a better epitaph be found for the great observer we honour to-day—John Hunter?

HAEMATEMESIS

WITH SPECIAL REFERENCE TO CHRONIC PEPTIC ULCER

BY

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AND

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While haematemesis remains one of the common emergencies in hospital practice it is natural that its prognosis should be the subject of controversy. This controversy has been fostered by the widely different fatality rates recorded by various workers. To a great extent these discrepancies have arisen from faulty selection of data and errors in their presentation. The fallacies of many published series have been pointed out by Avery Jones (1947), and he has suggested criteria for estimating the fatality rate which if generally adopted would permit fair comparison of different series. Avery Jones has also presented the largest personal series of cases of haematemesis treated in this country, with a fatality rate of 8%. It is likely that haematemesis carries a considerably higher fatality rate in the country as a whole, for it would be absurd if a highly trained specialist did not obtain better results than less-experienced workers.

The great value of Avery Jones's results is that they set a standard which others may seek to achieve. In this connexion it is noteworthy that the literature shows that most series with a low fatality rate have come from interested single physicians presenting their own cases, whereas studies of gross hospital figures commonly indicate a much less favourable prognosis. Thus Babey and Hurst (1936), Smith (1945), and Avery Jones (1947), who report their own cases, record fatality rates of 6–8%. Conversely, recent publications of mass hospital figures show a fatality rate ranging from 13 to 25% (Chiesman, 1932; Cullinan and Price, 1932; Burger and Hartfall, 1934; Hellier, 1934; Aitken, 1934).

We believe that mass hospital figures are more truly representative of the dangers of haematemesis than are the results obtained by a few specialists, provided that the data are handled with an appreciation of possible fallacies. The one essential is that only those data which are likely to be accurately recorded in the notes should be employed. The present study shows that haematemesis remains a highly dangerous condition.

Data

The sources of data of this study are the in-patient notes of the Radcliffe Infirmary, a general teaching hospital in a half-rural, half-industrial area, covering the ten years 1938–47 inclusive. Case notes of all patients admitted as emergencies because of haematemesis or melaena have been analysed. The cause of the bleeding was classified under the following headings: (1) chronic peptic ulcer; (2) acute peptic ulcer; (3) other causes; (4) unknown.

The criterion used for making the diagnosis of peptic ulcer was a record in the case history of epigastric pain with at least two of the following characteristics: (1) relationship to meals; (2) relief by food, alkalis, or vomiting; (3) periodical remissions. In addition, a history of previous perforation or positive *x*-ray findings were taken as strong evidence in favour of the diagnosis. Ulceration was deemed to be acute if there was no history of periodicity and the symptoms had been present for less than three months.

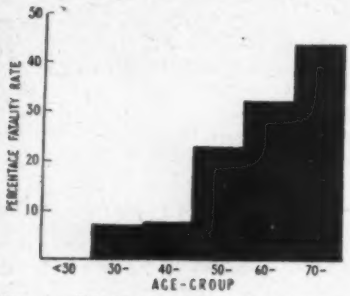

FIG. 1.—Whole series: fatality rate from haematemesis

In considering the fatal cases we have adopted the criteria of Avery Jones (1947) in excluding only those deaths due to unrelated diseases or to elective operation after recovery from the bleeding. Those excluded were due to: (1) pyaemia arising from a boil (44 days after admission); (2) subarachnoid haemorrhage (30 days after admission); (3) partial gastrectomy (for perforation on 14th day after admission); (4) partial gastrectomy (51st day); (5) liver failure due to a concurrent hepatitis (31st day after admission).

Results

Table I and Fig. 1, dealing with the whole series, show the relation between age and fatality rate and demonstrate that the fatality rate climbs steeply with advancing years. There appears to be a sharp increase at about 50 years of age, and the fatality rate of the over-fifties is about five times as great as that of the under-fifties (Table II).

TABLE I.—*Total Series. Fatality Rate from Haematemesis by Age*

Age Group	No. of Cases	No. Died	Fatality Rate
<30	26	0	0%
30–39	42	3	7·1%
40–49 ..	67	5	7·5%
50–59 ..	84	19	22·6%
60–69 ..	56	18	32·1%
70+	30	13	43·3%
Total ..	305	58	19·0%

TABLE II.—*Fatality Rate in Groups Under and Over 50*

Age Group	Cases	Fatality Rate	Difference	Standard Error of Difference
<50 ..	135	5·9%	23·5	4·0
50+ ..	170	29·4%		

TABLE III.—*Fatality Rate by Age in the Different Groups*

Age	Chronic Ulcers			Acute Ulcers		Other Diagnosis		Unknown	
	No. of Cases	No. Died	% Died	Cases	Died	Cases	Died	Cases	Died
<30 ..	18	0	0	2	0	2	0	4	0
30–39 ..	30	2	6·6	7	0	0	0	3	1
40–49 ..	44	4	9·1	14	0	3	1	6	0
50–59 ..	59	15	25·4	10	0	7	1	8	3
60–69 ..	41	13	31·7	5	1	2	1	8	3
70+ ..	16	5	31·2	6	2	1	1	7	5
Totals ..	208	39	18·8	44	3 (6·8%)	17	4 (23·5%)	36	12 (33·3%)

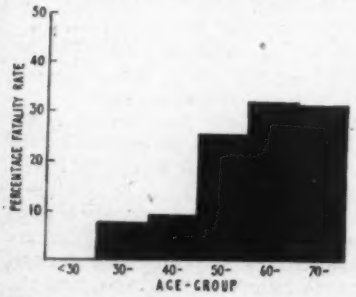

FIG. 2.—Chronic ulcer group: fatality rate from haematemesis.

Table III shows that 208 patients were classified as suffering from chronic ulcer by the criteria already given. The effect of age of patient on liability to death remains as pronounced as with the whole series, and Fig. 2 is similar in shape to Fig. 1.

In what follows we are concerned solely with the group of cases diagnosed as proved or probable chronic peptic ulcer. A certain number of patients included in the "unknown" or "acute ulcer" groups were later found to be suffering from chronic peptic ulcers. However, we have deliberately not included such cases in our chronic ulcer group for the reason that a diagnosis of chronic ulcer can always be made at necropsy, but the final diagnosis is not necessarily certain if the patient lives. In other words, to work on final diagnosis might unduly weight the "chronic ulcer" group with fatal cases. In consequence we have preferred to deal with those cases whose previous history made the diagnosis of chronic peptic ulcer reasonably certain on admission to hospital. It may be noted that no gross distortion of our main conclusions occurs if we work on final diagnosis.

Effect of Sex

Table IV shows the results of classifying the chronic ulcer group into males and females and two main age groups—i.e. below and above 50 years. Considerably fewer women than men are admitted with haematemesis due to chronic ulcer, and the discrepancy between the sexes is more pronounced in the younger of these groups. The effect of age on fatality rate appears to be similar in men and women, so that when we deal with the whole group this effect is not an artifact due to different proportions of men and women in various age groups. For comparison we have regrouped Avery Jones's data in the same way (Table V). It will be seen that a similar sex distribution occurs. A small point worth mentioning is that among the men the proportion of patients over 50 is almost identical in the two series. Avery Jones's belief that municipal hospitals have to deal with an unduly large proportion of elderly patients therefore does not appear to be well founded.

TABLE IV.—*Chronic Ulcer Group Only: Effect of Sex on Fatality Rate*

Age Group	Males		Females	
	No. of Patients	No. Died	No. of Patients	No. Died
<50	74	5	18	1
50+ ..	83	26	33	7
Totals ..	157	31	51	8

TABLE V.—*Avery Jones's Figures Regrouped as in Table IV*

Age Group	Males		Females	
	No. of Patients	No. Died	No. of Patients	No. Died
<50	166	3	54	2
50+ ..	180	25	130	12

Length of Ulcer History

Although it is well known that older patients are more prone to die from haematemesis, there is little clear evidence to show the precise reason. It is important to elucidate whether the change in fatality rate is brought about by (*a*) general bodily changes due to ageing of the patient or (*b*) local conditions in the ulcer, particularly those due to chronicity. Since a chronic peptic ulcer may persist for many years it is evident that among the older age groups there would be a large proportion of patients with long-standing ulcers. Therefore in order to separate the effects of age of patient from length of ulcer history we have so analysed our data as to show the influence of both these factors simultaneously (Table VI and Fig. 3).

From Table VI it appears clear that the age of the patient is of profound importance and the length of ulcer history negligible. The finding is so clear-cut that it is unlikely to be an artifact. Unfortunately, previous workers have not presented their data in such a way as to demonstrate whether or not this is a general finding. It is true that Burger and Hartfall (1934) mention the length of history of all their cases of peptic ulcer and of the fatal cases, but no account is taken of the patient's age. When their data are rearranged and presented as in Table VI we find that patients with a history of more than ten years have a worse prognosis than those with a history of 1–5 years, but the difference is not great (Table VII). The

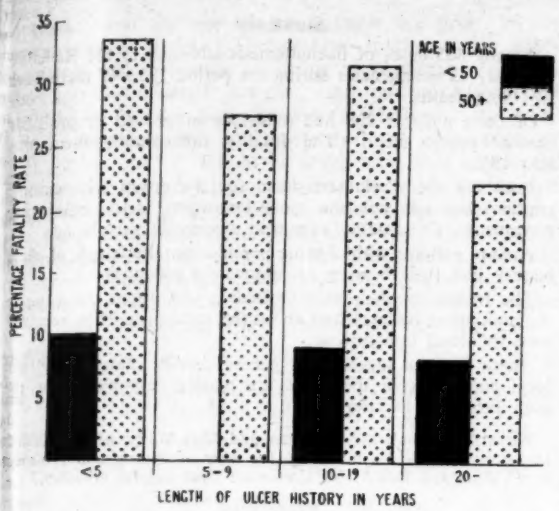

FIG. 3.—Fatality rate in relation to length of ulcer history and age group.

TABLE VI.—*Chronic Ulcer Group. Influence on Fatality Rate of Age of Patient and Length of Ulcer History*

Length of Ulcer History	Age of Patients in Years					
	<50			50+		
	No. of Patients	No. Died	Fatality Rate	No. of Patients	No. Died	Fatality Rate
5 years ..	30	3	10·0%	18	6	33·3%
5–9 ,, ..	24	0	0·0%	22	6	27·3%
10–19 ,, ..	22	2	9·1%	48	15	31·2%
20– ,, ..	12	1	8·3%	27	6	22·2%
Not specified ..	4	0	—	1	0	—
<10 years ..	54	3	5·6%	40	12	30·0%
10+ ,, ..	34	3	8·8%	75	21	28·0%

TABLE VII.—*Fatality Rate from Rearrangement of Burger and Hartfall's Data*

Length of Ulcer History	No. of Patients	No. Died	Fatality Rate
1–5 years	51	14	28%
5–9 ,, ...	12	1	8%
10+ ,, ...	29	11	38%

group of patients with a history of 5–10 years is so small that little attention can be paid to its low fatality rate. When we bear in mind that long-standing ulcers are more common in older age groups the greater average age of such patients might well account for the small difference observed.

Prognostic Significance of Previous Haematemesis

A history of previous haematemesis is not uncommon among patients in the chronic ulcer group. It is naturally important to know whether or not a past history of haematemesis influences prognosis. Table VIII shows the results of comparing patients with and without a history of previous haematemesis in the two main age groups.

TABLE VIII.—*Chronic Ulcer Group. Prognostic Significance of History of Previous Haematemesis*

	<50			50+		
	No. of Patients	Fatality Rate	Difference and Standard Error	No. of Patients	Fatality Rate	Difference and Standard Error
With previous haematemesis	33	9·1%	4·0 ± 5·8	47	27·7%	1·3 ± 8·6
Without previous haematemesis	59	5·1%		69	29·0%	

There is no significant difference in fatality rate between these two classes of patient, but the effect of age remains unaltered. In other words, a history of previous haematemesis has no bearing on immediate prognosis. Conversely, the greater fatality rate among older age groups is not because they contain a large proportion of patients with a history of previous haematemesis.

Severity of Bleeding

In considering why older patients are more prone to die from haematemesis we must take account of the possibility that such patients may bleed more profusely or for a longer time than younger patients, possibly because their vessels are arteriosclerotic and cannot retract efficiently. It is evident that no accurate estimate of the extent of bleeding can be obtained without precise and repeated studies of haemoglobin and blood volume. Such elaborate data are not available in case notes, and we have been forced to rely upon (*a*) a record of repeated frank haematemesis or melaena, or of general signs of internal haemorrhage, to indicate the occurrence of further bleeding after admission to hospital, and (*b*) the amount of blood transfused as a rough indication of the total blood loss.

Table IX shows that while recurrent bleeding is more common in the older age-groups the difference is not great, and it is certainly not sufficient to account for the much higher fatality rate.

TABLE IX.—*Chronic Ulcer Group. Frequency of Recurrent Bleeding Among Age Groups*

Age Group	No. of Cases	No. with R.B.	Difference	Standard Error of Difference
<50 ..	92	28 (30·4%)	6·7	6·6
50+ ..	116	43 (37·1%)		

Table X shows the amount of blood transfused to patients in the two main age groups. If we define a massive blood transfusion as one of ten pints (5.68 litres) or more, it is of interest that in each of the age groups about the same proportion of patients received such a massive transfusion: 6 out of 92 (6.5%), compared with 10 out of 116 (8.5%). Massive bleeding is therefore not uncommon in the younger age groups, but it does not often appear to be fatal when treated with blood transfusion.

TABLE X.—*Chronic Ulcer Group. Amount of Blood Transfused*

Age:	<50		50+	
No. of Bottles of Blood	Cases	Died	Cases	Died
0	49	0	38	4
1–4	29	4	47	15
5–9	7	0	18	5
10+	6	1	10	6
Unknown	1	—	3	—

Within the limitations inevitably imposed by the nature of our data, these findings do not suggest that the greater fatality among older age groups is mainly due to more severe haemorrhage. We are thus led back to our previous conclusion that the difference is due to the general bodily changes which occur with age.

Results of Surgery

Very few cases were treated surgically. Eight patients, all over 50, were treated by emergency partial gastrectomy because of recurrent bleeding. The results were not encouraging, for five patients died. In such a small group random sampling errors may be very large, so that no firm conclusion can be drawn from this result. Six patients were treated by other surgical procedures, such as under-sewing the ulcer or ligating an artery. Among these, of four who were under 50 three lived, and of two over 50 both died. We are not concerned here with the relative merits of surgical and medical treatment, for which an *ad hoc* inquiry is preferable. One reason for including these figures is to show that the over-fifties are a poor risk with haematemesis whether treated medically or surgically. More important in the present context, the number of cases treated surgically is not large enough to distort our main conclusions.

Discussion

The most prominent feature of this series is the great increase of fatality rate with increasing age of the patient. This has been noted previously by many workers both in this country and in America, but little attention has been focused on the underlying reasons for it. It is conceivable that the older patients may die more readily either because the ageing organism becomes less adaptable or because local changes which predispose to massive haemorrhage may develop in the ulcer as a result of chronicity. Analysis of the present series shows that the length of history among patients with proved or probable chronic peptic ulcer has no bearing on the expectation of death, which seems to be related to general changes in the body consequent upon age. This conclusion is supported by other findings. Thus recurrent bleeding after admission to hospital occurs very little more frequently in the older than in the younger age groups. About the same proportion of young and old patients require massive blood transfusion; but, whereas the younger patients receiving massive transfusion mostly live, the older ones mostly die.

It would be convenient if we were able to compare this finding with the fatality of haemorrhage occurring from other causes, but there is no common cause of massive haemorrhage occurring over a wide age group. We have therefore been unable to seek confirmation along these lines. However, the general bodily changes induced by haemorrhage are somewhat similar to those occurring in "shock," and it is therefore of interest to examine the prognosis of perforated peptic ulcer in relation to age. Table XI, which has been compiled from the records of the Radcliffe Infirmary, shows that perforation of peptic ulcer produces a fatality rate which climbs steeply with advancing age.

It is unlikely that the local conditions in perforated ulcers can account for the great difference in prognosis between young and old patients. The marked increase in fatality rate with advancing years is therefore presumably due to changes in the whole organism. The similarity between these findings and those in haematemesis reinforces our previous conclusion that in haematemesis the poor prognosis in later life is mainly due to general bodily changes and not to local conditions.

TABLE XI.—*Fatality Rate of Perforated Ulcer by Age Groups*

Age Group	No. of Cases	No. Died	% Died
<30	18	1	5·6
30–39 ..	34	1	2·9
40–49 ..	48	10	20·8
50–59 ..	41	12	29·2
60–69 ..	23	7	30·5
70+	9	3	33·3
Total ..	173	34	19·7

Haematemesis and perforation are the commonest major complications of chronic peptic ulcer, and both are dangerous to life if they occur in middle age or later. It is natural to speculate whether patients approaching middle age with a chronic peptic ulcer should be treated by partial gastrectomy largely as a prophylactic measure. In order to arrive at a decision we must be able to weigh the risk of elective partial gastrectomy against the chance of dying in the future from haematemesis or perforation of a chronic ulcer. On the one hand, the operative fatality rate of partial gastrectomy is known to be about 5% or less in patients under 50. On the other, there appears to be no precise knowledge of the chance of developing either of these complications. With this serious omission in our knowledge it is consequently impossible to reach any valid conclusion.

Summary

Among 305 cases of haematemesis admitted to the Radcliffe Infirmary as emergencies during the period 1938–47 there were 58 (19%) deaths.

Of these patients 208 had a history of proved or probable chronic peptic ulcer. The fatality rate among them was also 19%.

Both for the whole series and for the group with chronic peptic ulcer age was the most important factor influencing prognosis. The fatality rate rose steeply in middle age.

Among patients with chronic peptic ulcer the length of ulcer history had little bearing on immediate prognosis.

The frequency of recurrent bleeding was about the same in old and young patients, and about the same proportion received massive blood transfusions.

These findings suggest that general bodily changes, and not local conditions in the ulcer, are mainly responsible for the poor prognosis in later life.

We wish to thank Mr. J. Baxter and Miss Merry, of the Records Department, Radcliffe Infirmary, for their assistance, and Professor L. J. Witts and Dr. A. M. Cooke for their helpful criticism.

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PUNCH PROSTATECTOMY

BY

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Punch prostatectomy is a subtotal prostatectomy carried out through the urethra, thus avoiding an abdominal incision. Any paper that refers to the mortality rate for prostatectomy, by whatever method, must offer particular and precise information on at least the following points: the age and type of patient, the indications for prostatectomy, the number of permanent ambulatory suprapubic cystostomies, and whether those cases admitted with retention were subjected to early or late prostatectomy. These points largely determine mortality rates, and a low mortality rate in any series that omits particular reference to them carries no conviction; it merely reflects an accepted view that the present-day hazards of abdominal surgery in good or in moderately good risks are not high.

The mortality rate is known to be lower for private than for hospital patients. "This is due to the fact that the average hospital case is a notoriously bad risk, having neglected himself until complete retention or renal failure forces him to seek advice, whereas the private patient presents himself at an earlier and more favourable stage of the disease" (Kenneth Walker, 1933).

One may add a further and notable distinction—namely, that between municipal and voluntary hospital patients, a series of the former being heavily overweighted by physical wrecks with advanced degenerative changes and a physiological age well in advance of their calendar age. Until recent months this series has been composed entirely of municipal patients.

The safety of punch prostatectomy allows it to be performed in preference to suprapubic cystostomy, so that no permanent suprapubic cystostomies in ambulatory patients have been carried out in this series. The indications for

operation and the age of the patients are given in the accompanying Table. The routine treatment for cases admitted with retention of urine is decompression and drainage by urethral catheter, the patient being kept ambulatory during both procedures, followed by early punch prostatectomy. Complete bed-rest is unnecessary and detrimental. It should be emphasized that any statistical survey favours abdominal prostatectomy, as patients who present too great a risk for abdominal prostatectomy are accepted or transferred to the clinic for punch prostatectomy. In the Table no attempt has been made to separate the good from the bad risks—and many were the worst possible—or simple from malignant prostates. Many of the latter had widespread spinal metastases at the time of operation.

400 Cases of Prostatic Obstruction, Simple and Malignant, Treated by Punch Prostatectomy

Age Group	Cases	Age Group	Cases
30–39	2	60–69	158
40–49	10	70–79	140
50–59	66	80–89	24

Indications for Prostatectomy

(1) Retention:		(2) Dysuria, including haematuria	132
Acute	169	(3) Permanent suprapubic cystostomy	14
Chronic I*	81		
Chronic II*	3		
Mixed	1		
Total	254		

* Chronic I and chronic II cases are those with or without urinary symptoms respectively.

Mortality Rate

First 100	15%	Third 100	2%
Second 100	9%	Fourth 100	4%

One patient aged 36, with a previous retention at the age of 31, was found to be suffering from prostatic cysts, which were successfully resected. One hundred patients were resected with the diathermy loop before this instrument was discarded in favour of the punch instrument.

One case of *post-operative stricture* at the external meatus was rapidly cured by meatotomy and bougies. There was one case of *post-operative incontinence.*

Associated vesical lesions consisted of calculi, 4; calculi and diverticula, 2; diverticula, 2; carcinoma, 1. In two cases a diverticulectomy had to be carried out.

Raised blood-urea was encountered in 27 cases before operation, as follows: 200–250 mg. per 100 ml. in 2 patients, 150–200 mg. in 3 patients, 100–150 mg. in 8 patients, and 60–100 mg. in 14 patients. Most of these raised figures fell to normal with urethral drainage immediately before operation. There were two deaths, both in the last group. The results of preliminary urethral drainage in these cases of chronic retention do not suggest that this method should be discarded in favour of prostatectomy with the bladder undecompressed.

Raised Blood-pressure Estimations.—Systolic blood pressures of 200 mm. Hg or over were recorded in 43 cases. These readings were taken on the operating table immediately before operation without preceding ephedrine, and were in a few cases higher by 10–20 mm. than the resting pressures taken in bed. The highest pressure taken would not record on the 260 mm. Hg sphygmomanometer.

Mortality Rates.—The mortality rate of 15% for the first hundred is unduly high and is not likely to be repeated. It was due to a number of causes. The cases were then nursed in a chronic ward with all that this implies in a municipal hospital. The patients operated on represented in a high percentage the rejects and failures of abdominal prostatectomy—a resident or semi-resident population of aged men, some with high infected residual urines who were catheterized intermittently and others who returned to hospital at regular intervals to have phosphatic concretions removed from their suprapubic tubes. In addition there was a varied pathological group, also of shocking risks: one patient had been bedridden for ten years with syringomyelia before developing definite symptoms of prostatic obstruction. Lack of experience with the punch instrument contributed to the mortality rate in the first hundred and to a lesser degree in the second hundred. Of the two patients dying in the third hundred, one, aged 75, had been catheterized eight times before admission and the second was aged 82. After operation the latter patient, in a moment of mental weakness and using a razor that bore excellent testimony to the standards of the Sheffield Cutlers, performed a very radical amputation of his penis and scrotum.

The relevant details of the four deaths in the last hundred are as follows: at age 67, from advanced prostatic carcinoma; at age 65, a patient with paralysis agitans, death from pulmonary embolus—the only one in the series; at age 75, transferred with suprapubic cystostomy for punch prostatectomy, emaciation extreme; at age 75, a patient catheterized six times before admission.

External Urethrotomy.—In eight cases the calibre of the urethra was so small that the instrument had to be inserted through a small urethral incision.

Prostatic Carcinoma.—There were 55 cases (approximately 14%). Of these, 51 were treated by punch prostatectomy and the diagnosis was pathologically confirmed. In the remaining four the clinical or pathological signs or the response to oestrogen therapy left no doubt about the diagnosis. As the result of rectal and radiological examination, acid serum phosphatase estimation, and posterior urethroscopy, the pre-operative diagnosis was unmistakable in 48 out of the 51 cases. The proportion of occult prostatic carcinoma was therefore under 1%. One patient died of heart failure; the remaining two, on oestrogen therapy, are still alive without evidence of a recurrence six years and three years after resection. One further fact is worthy of comment. In dealing with a moderate-sized or large malignant prostate which is hard and nodular on rectal examination the amount of tissue removed at operation before the capsule is exposed is often surprisingly small. Rectal examination after such an adequate resection exposing the capsular fibres almost invariably reveals no change whatever in the hard nodular feel. This clearly shows that the greater part of the malignant tissue is outside the capsule. As it is very rare for the maximum size of a malignant growth to be elsewhere than at its point of origin—apart, of course, from metastases—this finding is evidence that this type of carcinoma has a very high incidence of origin from the posterior lobe.

Chronic Retention.—The cases of chronic retention have been classified into groups I and II, the former with urinary symptoms, the latter without. The clinical impression derived from these cases is that, with equal degrees of a substantial renal impairment as represented by the blood-urea estimation, the prognosis is worse in group II than in group I. This is an expected finding, as group II cases tend to be more chronic than group I, and the prognosis clearly depends on the length of time the blood urea has been raised as well as the height of the rise. Sudden emptying of the bladder in late group II cases may without doubt be fatal. I believe that these cases should be treated by a very slow decompression. The urinary output for 24 hours is measured—it may be normal—and this figure forms the basis for the decompression. The decompression is started by withdrawing from the bladder in 24 hours a volume of urine which exceeds this figure by 4 oz. (114 ml.); the bladder is therefore initially being decompressed at the rate of 4 oz. a day—a rate that may have to be increased later. This method is, of course, applicable only to group II cases.

Results of Follow-up

Punch prostatectomy, being a subtotal prostatectomy, is associated with a small recurrence rate, which in the hands of an expert employing the operation in nearly 100% of cases should be less than 3–4%. Abdominal prostatectomy, however, is not free from recurrence rate, six patients in this series having previously undergone abdominal prostatectomy. Too short a time has elapsed for an adequate statistical follow-up of the recurrence rate, but a clinical impression of the results of punch prostatectomy was obtained by sending for consecutive patients so that 100 attended for personal examination, the last patient having been operated on 12 months previously.

Of these 100 patients, 11 of whom were in their 80's, the urine was crystal-clear in 86, hazy in 11, and turbid in 3. Of the three patients with turbid urine one, aged 72, had undergone four previous bladder operations elsewhere for prostatic obstruction and bladder diverticulum, resulting in a suprapubic sinus and heavily infected urine. The sinus closed after punch prostatectomy. The second, aged 64, was admitted with a perforated duodenal ulcer and developed persistent urinary retention after operation. A severe urethritis complicated his catheter drainage and necessitated a suprapubic cystostomy. No aetiological factor was present in the third patient: he was symptom-free, with a nocturnal frequency of one. He stated that normally his urine was clear.

Nocturnal micturition was *nil* in 33 patients, once in 30 patients, twice in 25 patients, and more than twice in 12 patients. This latter group of 12 is composed as follows: 3 patients, two to three times; 4, three times; 2, three to four times; 2, four times; 1, six times.

One patient was aged 83 and 7 were in their 70's; 2 patients had malignant prostates; 3 had hypertension with systolic blood pressures of 250, 240, and 220 mm. Hg; 4 spent thirteen hours in bed, and many drank fluid during the night. One patient, a restless facile 79 whose nocturnal frequency was six, drank more than a quart of fluid during the night.

In this aged, or bad-risk, group the standard of judging post-operative results clearly differs from that obtaining in the fitter group. The former patients stay in bed longer, frequently drink fluid during the night, are more intolerant or restless, and show a high incidence of raised blood pressure, cerebral arteriosclerosis, myocarditis, and polyuria. For these patients to have survived operation with a good urinary stream must be judged a satisfactory result. Most of them would formerly have been considered unfit for prostatectomy and would have been treated by permanent suprapubic cystostomy.

Status of Punch Prostatectomy

Punch prostatectomy is no new surgical adventure. In the Mayo Clinic, where the operation is carried out in almost 100% of cases of prostatic obstruction, over 14,000 cases have been treated by punch prostatectomy since 1933. It can be safely said, therefore, that this operation has successfully withstood the tests of time and experience, so that the wave of enthusiasm that so often sweeps a new operation beyond its established limits has had time to recede.

The outstanding impression after 400 cases of punch prostatectomy is without question the greater safety of this operation as compared with abdominal prostatectomy. At least four patients successfully resected were so dyspnoeic that they could not lie flat either during or after the operation.

Case Record.—A patient, aged 80, was admitted in 1947 with prostatic dysuria and cystitis. The blood urea was normal; symptoms improved on penicillin and sulphamezathine, and therefore operation was not advised. He was readmitted 12 months later with incapacitating symptoms and a rising blood urea: no improvement occurred on penicillin and sulphamezathine. Punch prostatectomy was carried out under low spinal analgesia without a suprapubic cystostomy when his blood urea was 120 mg. per 100 ml. Convalescence was satisfactory; his blood urea returned to normal.

Operation on the worst risks indisputably provides the best test of safety. If an operation is safer for bad risks it is also safer for good risks. Five factors contribute to this safety: the operation is carried out under one of the safest of anaesthetics—a low spinal; the operation can be terminated at any point of time dictated by the patient's condition; it is a closed prostatectomy; an abdominal operation with all its well-known sequelae can be avoided; and there is a smooth, rapid, and ambulatory convalescence. The day after operation an average poor risk is on light diet and usually walks some 30 to 60 yards in one or two stages. Punch prostatectomy has reduced to a minimum operative trauma and therefore the operative mortality rate.

Apart from the route of access, punch prostatectomy possesses at least two distinguishing features. First, as the prostate is removed in portions the operation time varies directly with the size of the prostate; secondly, it is a highly specialized procedure requiring a long period of training. Failure to realize the importance of these two points may lead to some disillusionment. The operation time must not exceed three-quarters to one hour: a surgeon with little experience of this work may remove some 15 to 20 g. in this time. If the prostate is large (80–100 g.) the patient will at this rate of resection require multiple operations for an adequate removal, and if he is fit enough to survive these multiple operations will certainly develop a severe cystitis or pyelonephritis. Experience with the operation, however, increases both the speed and the safety of resection. The largest weight of tissue I have resected, in an orderly fashion with due care and time for adequate haemostasis, is 84 g. in one hour. This brings the majority of cases of prostatic obstruction, in one or two stages, well within the range of transurethral surgery. It has been estimated that in only 7% of cases does the prostatic weight exceed 100 g.

The textbook indications for punch prostatectomy are for prostatic obstruction due to fibrous, malignant, and small adenomatous glands and for prostate obstruction in bad surgical risks. The weak point in this classification lies in its confusion of clinical with pathological types, as it is quite clear that bad surgical risks, to whatever age group they belong, often have not only fibrous, malignant, and small adenomatous prostates but large prostates as well. A bad surgical risk, a large or difficult prostate, and an inexperienced resectionist constitute a lethal combination. The old idea that normal micturition can be restored for any length of time, or even restored at all, by "guttering" the prostate or by removing a few grammes of obstructing tissue is, I believe, quite wrong. Removal of the middle lobe in a trilobed enlargement may allow the lateral lobes to fall together and perpetuate the obstruction, and a further incomplete removal of one lateral lobe allows the opposite lobe to swing over and the obstruction may still be inadequately relieved. The removal of prostatic tissue in these bad surgical risks with large prostates must be substantial but need not be subtotal.

The indications for punch prostatectomy are, I believe, best given in terms of the size of the prostate and the experience of the surgeon; in other words, with great competence it is the operation of choice in the great majority of all cases of prostatic obstruction; with limited competence, some 15%. The occasional outsize prostate should be

treated by abdominal prostatectomy. The status of the operation is therefore not a fixed one. Furthermore, any relative contraindication to abdominal surgery—i.e., obesity or a bad chest—constitutes an important indication for transurethral surgery. In this series 99% of all cases were treated by punch prostatectomy.

Discussion

Although punch prostatectomy has reduced mortality rates to a minimum, outstanding problems still clearly exist. Those that derive from a chronically distended bladder occupy a foremost place, the most serious being a bilateral pyelonephritis due to penicillin-resisting organisms superimposed on kidneys already damaged by prolonged back pressure.

With the outstanding exception of Wardill's work at Newcastle-upon-Tyne, the opinions expressed in this country on punch prostatectomy on the whole have either been unfavourable or have unjustifiably restricted the scope of the operation. This may well be due to technical inexperience. John L. Emmett, of the Mayo Clinic, in a most helpful personal letter in reply to the question of the number of operations at which a surgeon should assist before being allowed to carry out a punch prostatectomy himself, states: "This question is very difficult to answer for the reason that the manual dexterity of individuals differs so greatly. I think, however, that a man should have had experience in at least a couple of hundred cases before he can consider himself fairly well trained."

So far, little mention has been made of what to the patient is the most attractive feature of the procedure—namely, the absence of an abdominal operation. Elderly patients show a well-founded aversion to an abdominal operation, many in this series having at first refused prostatectomy on the assumption that it meant a "cutting" operation. The popular appeal of this operation is based on sound clinical experience. It is perhaps not out of place to emphasize the fact that bad-risk patients with mild dysuria and a low residual urine require a period of observation before operation is considered. Indications for operations in this group must be clear and beyond dispute.

Conclusion

The outstanding impression is the safety of punch prostatectomy and its freedom from post-operative incapacity. It is applicable to the majority of cases of prostatic obstruction. For the aged bad risk group it is in a class by itself. In highly specialized work the surgeon is very much in the hands of his theatre and ward staff. In both these respects I have so far been particularly fortunate.

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The Ministry of Health points out that patients in hospital for any length of time may accumulate substantial sums by way of benefit or pension from the Ministry of National Insurance or National Assistance Board. These sums, together with any cash handed over by the patient on admission, should be banked and a separate banking account maintained if necessary. A separate ledger account should be kept at the hospital for each patient who has money to his credit in this account and debited as cash or its equivalent is issued to the patient or purchases made on his behalf. Payments can also be made to relatives out of the account at the written request of the patient. In the case of mental patients for whom no officer has been appointed to act in accordance with paragraph 4 of HM.C.(48)24, B.G.(48)22, a certificate should also be obtained from a medical officer that the patient understands the nature of the transaction. Any interest accrued to the patient's bank account may be placed to the credit of the committee's or board's endowment account for the benefit of patients' amenities generally. The accounts relating to these transactions should be under the control of the chief financial officer and should be submitted to the auditor.

OSTEITIS FIBROSA DISSEMINATA

BY

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Osteitis fibrosa disseminata is a regional fibrocystic disease of bone with distinct and characteristic features. Its aetiology is obscure. No familial or hereditary tendency has been noted (Lichtenstein, 1938), but its segmental distribution suggests that it may have its origin in a congenital abnormality (Adams *et al.*, 1940). The condition may be a sequela of icterus gravis neonatorum in which the liver fails to store and utilize vitamins (Braid, 1932, 1939). An embryological defect, with an associated endocrine condition (Albright, *et al.*, 1937), and an abnormality in the region of the hypothalamus or walls of the third ventricle (Shallard, 1940) are also postulated as causes. The common features of the disease, the bone changes, may be the response of bone marrow to various stimuli—inflammatory, neoplastic, metabolic, or simple mechanical (Freund and Meffert, 1936). Trauma is common in childhood, and perhaps is too often present in the patient's history to be only of accidental importance; yet the disease cannot be produced experimentally by trauma (Freund and Meffert). Local bone changes, starting in childhood from various centres in the same bone, may be due to osteoclastic absorption and hydropic degeneration of the fibrous bone marrow as a consequence of the augmentation of pressure due to impaired venous flow (Freund and Meffert).

Symptoms and Signs

The condition first makes itself evident in childhood or adolescence, usually by fracture or bony deformity, and no extraskeletal changes may be found. Braid observed from birth an infant who showed typical bone changes at the age of 2 years, and a second child who had the first of a series of fractures at the age of 1½. Both these patients suffered from icterus gravis neonatorum, and Braid states that at the age of 2½ years her female patient showed enlargement of the breasts and had a menstrual period, which lasted nine days. McClune reported bone changes in a 1-year-old infant, who also had icterus gravis neonatorum, in whom menstruation began at the age of 3½ years, and who was sexually mature at 4. Cutaneous pigmentation was seen in all three patients. There is no difference in the frequency of the sex incidence of the disease (Adams *et al.*, 1940); but endocrine dysfunction occurs typically in the female, and Albright described a further seven patients, four of whom were females, with the syndrome of osteitis fibrosa disseminata, areas of pigmentation, and sexual and somatic precocity.

Sex abnormalities in males are usually absent, although one case is recorded in which there was atrophy of the testes without any changes in the secondary sex characteristics. The general health is not affected and pain is conspicuously absent.

The Bone Changes

The bone lesions are the cardinal and sometimes the only features, and are responsible for the deformities and fractures which may be the first sign of the condition. Any of the skeletal bones may show the disease, but it is commonest in the lower limbs, where the ilium, femur, and tibia are most often affected. Bowing of the extremities is well marked, as in patients reported by Braid (1932, 1939) and by Murray *et al.* (1946); and kyphosis and

anterior bowing of the sternum have been described by Braid.

Braid also noted that in her original patient the bone disease did not attack the epiphyses, and it has since been found that they are constantly and characteristically spared, but the diaphyses are involved to a variable degree. Typical of the disease, too, is its regional distribution in bone, some bones showing patchy decalcification and others being completely normal. Deformities may also occur in the skull in the form of bony swellings, as in the case recorded below, or there may be asymmetry of the face (Coleman, 1939); tallness, due to delayed union of bone, is described by Shallard. The cystic areas of the affected bone vary greatly in size and density, and spontaneous fracture usually takes place through the site of a large cyst. These cystic areas, states Coleman, are clean-cut and involve the medulla and cortex, in some regions expanding the shaft of the bone and everywhere entirely replacing the normal bony architecture, with areas of increased density either associated with the cysts or appearing as irregular speckling; the cortex may be eroded as thin as paper. Freund and Meffert state that the internal moulding and resorption, instead of leading to the formation of lamellar bone, produces fibrous bone marrow and fibrous, porotic, spongy bone. The cortex is thin and expanded, owing to the encroachment on its endosteal surface, the periosteum playing no part in the pathology.

Macroscopically, the marrow spaces are wide and are filled with a yellow, white, or grey fibrous tissue, and the cavities with fluid of gelatinous material, forming true cysts or merely spaces filled with fibrous tissue (Adams *et al.*, 1940). Microscopically, dense fibrous-tissue cells replace normal bone and form irregular trabeculation throughout; osteoid tissue is common and indicates bone regeneration, which is occurring simultaneously with bone destruction; the cystic cavities are lined with compact fibrous tissue, and nests of foam cells can be seen (Adams *et al.*, 1940). Conclusive diagnosis of the different forms of non-generalized osteodystrophy is not always possible, however, from examination of a few slides.

The skull often shows osseous defects. Marked thickening of the base of the skull is characteristic, while the vault has a finely granular appearance. Shallard (1940) states that hyperostosis is most evident at the base of the skull, and that the mastoid cells and accessory sinuses may be completely obliterated by dense bone. In the vault the bone changes resemble those of early Paget's disease, with its bony thickening, multiple areas of rarefaction, and preservation of the inner table. Cystic rarefaction of the occipital protuberance is described by Garlock (1938).

Other Changes

Cutaneous pigmentation is not always present, but it has been recorded in so many cases as to suggest that it has a common exciting factor with the bony pathology. It may occur anywhere in the body, including the scalp, where it may be missed at examination (Albright); if the skull is involved in the bony pathology its distribution may be bilateral. The serum calcium and blood phosphorus are normal, but the plasma phosphatase level may be raised. The blood count is normal. Urine calcium excretion is normal.

Prognosis and Treatment.—The prognosis is relatively favourable; but multiple fractures and skeletal deformity are prone to produce serious incapacity. It is generally slow, and the course is benign. Treatment is confined to preservation of function and, if necessary, to correction of deformities.

Case Report

The patient, a male cine-projectionist, aged 25, had spent fi years in the R.A.F., the last 3½ years overseas. His only con plaint was: "My mother states that the lump on the back my head has increased in size."

He had been employed as an electrician during his Servic career and was carrying out routine duties, which include P.T., drills, and parades, but no strenuous course or heavy lift ing. During the whole of his Service years he had not had an illness other than occasional colds in the head and influenza.

Previous History.—The patient's mother writes: "The lum on his head first became apparent at the age of 10 years. Th right side of the head, at the back, appeared to be developin faster than the left side. A bulge appeared a year or two late on the left side of the forehead. He had a bad fall downstai when 4 years of age, and also in childhood had bronchitis otherwise he was always healthy, with no aches or pains. Whe he returned recently after 3½ years overseas, the lump at th back of the head seemed to have gone further down and have spread across the top of the back of his neck to the le side. I am definite that the lump was only on the right si before, and was about a quarter its present size and going on half-way down on to the neck." There is also a history of fra ture of the right humerus at the age of 15, brought about very slight trauma. The patient was sitting at a table with oth children playing a game which involved placing the elbows the table, crossing the arms, and pushing the apposed han of their playmates. It was merely this light pressure, applie by a girl, which fractured his arm, and he remembers at th time being struck by the fact. At the hospital at which he w treated no mention was made of any other complication whe the fracture was radiographed. The bone healed in six week and he then continued with his work as a cine-projectionist. H has never suffered from headaches or from ear or eye troubl He has one sister, who is alive and well, but no brothers; h father and mother are also alive and well. There is no simil trouble in any member of the family.

On examination the patient looked fit and well; heig 5 ft. 8 in. (1.73 m.), tongue clean. The teeth, except the low incisors, canines, and first premolars, were removed five yea ago for caries. Nothing abnormal was found in heart, lun or genitalia. The left frontal region protruded forward, causi slight left exophthalmos. Protrusion was also present over t whole of the occipital bone to the size of half a melon, mo pronounced on the right side. The tumours were hard to t touch. No abnormal swelling or deformity was seen in lim

Clinical Findings

A radiograph of the skull revealed a large fibrocystic tumo over the whole of the occipital bone (Fig. 1). Both pari bones show areas of decalcification and the outer table is rais in places with blister formation, and in other areas there hyperostosis. The frontal bones show spotty decalcificati and there is a fibrocystic swelling in the left frontal bone, w

FIG. 1

distortion of the left frontal sinus. The sphenoidal sinus is almost completely occupied by a tumour mass, and the mastoid air cells are obliterated. The inner skull table is normal. Radiographs revealed fibrocystic disease of the shaft and lower end of the humerus, with some cyst formation and trabeculation (Fig. 2). The cortical bone is seen to be eroded, and is especially thin at the junction of the middle and lower thirds of the shaft, where the bone is slightly expanded. All other bones are normal.

FIG. 2.

Radiography of the abdomen disclosed considerable calcification of abdominal lymph glands. No renal calculi or gall-bladder calculi were seen; the dye test was normal. Vision is 6/6 in both eyes, and the hearing normal.

Blood Findings.—June 3, 1946: red cells, 5,880,000 per c.mm.; white cells, 8,600 per c.mm. (neutrophil polymorphs 76%, lymphocytes 18%, monocytes 6%). June 17: serum calcium, 12 mg. per 100 ml.; blood inorganic phosphorus, 1.3 mg. per 100 ml.; plasma alkaline phosphatase, 18 King–Armstrong units; blood cholesterol, 200 mg. per 100 ml. July 2: serum calcium, 12 mg. per 100 ml.; blood inorganic phosphorus, 3.8 mg. per 100 ml.; plasma alkaline phosphatase, 14 King–Armstrong units. (Rapid rise of inorganic phosphorus noted.) Aug. 9: serum calcium, 10 mg. per 100 ml.; blood inorganic phosphorus, 2.6 mg. per 100 ml.; plasma alkaline phosphatase, 6.75 King–Armstrong units. (All estimations checked owing to variation from previous readings.)

Urinary System.—June 3: reaction, alkaline; albumin, sugar, and protein (Bence-Jones method), *nil*. Aug. 9: blood urea, 32 mg. per 100 ml.; urea clearance, first hour 64% of normal, second hour 84% of normal (indicating only fairly good kidney function.) Urine calcium with known diet was within the range of normal. Faeces calcium, with known diet, also normal.

Discussion

Osteitis fibrosa disseminata has been described under a varied nomenclature, such as polyostotic fibrous dysplasia, osteodystrophia fibrosa unilateralis, osteitis fibrosa localisata, osteodystrophia fibrosa cystica generalisata, multifocal osteitis fibrosa, fibrous osteodystrophy, regional fibrocystic disease (Horwitz and Cantarow, 1939).

The possibility that icterus gravis neonatorum is a predisposing cause of osteitis fibrosa disseminata is suggested by Braid and elaborated by her in her record of two cases. McClune also reports this association. But whether the resulting bone changes are due to liver damage with consequent loss in vitamins, as Braid suggests, or whether the jaundice produces its effects elsewhere—as it does, for example, in the basal nuclei—are interesting speculations, as is the part played by haemolysis and anti-agglutinins on various organs. Braid states that Buchbinder and Kern produced rarefaction and cortical thinning and relatively wide medullary spaces and cysts in bones of puppies in which they had procured an obstructive jaundice; and they also brought evidence to show that there is some alteration in parathyroid function in obstructive jaundice. Braid, using the rabbit test in one of her patients, was, however, unable to demonstrate an excess of parathormone in the blood.

The blood changes in osteitis fibrosa disseminata frequently show a conspicuous alteration in the plasma phosphatase, which is often raised, while the blood calcium is at the upper limit of normal. Periodic variation in the phosphatase level in the same patient, as reported by Braid, by Garlock (1938), and in the above case record, would also seem to be typical of this disease. Smith and Maizel state that a high plasma phosphatase is found in active rickets and is probably derived from hypertrophic cartilage cells and osteoblasts, which Robinson has shown to be the source of the enzyme, the phosphatase level slowly falling to normal with healing of the disease. They state that in scurvy, on the other hand, the plasma phosphatase is low, since the picture is one of cessation of bone growth and ossification is in abeyance—the phosphatase rising, however, with treatment of the condition and calcification of the haemorrhages, finally falling to normal with the absorption of these calcified areas. It could therefore be submitted that raised and normal plasma-phosphatase readings coincide with, and are respectively indicative of, active and quiescent phases of the disease.

The difficulty in distinguishing the disseminated form of osteitis fibrosa from the generalized osteitis fibrosa cystica of Recklinghausen is a very real one, and Shallard instances many patients in whom exploration of the neck proved negative. In Recklinghausen's disease there is an osteoporosis of the whole skeleton, with cyst and bone-tumour formation, a raised serum calcium, lowered blood phosphorus, a raised plasma phosphatase, and an excess of urine calcium, with possible stone formation and an association of the condition with an adenoma of the parathyroid gland. Non-typical cases of Recklinghausen's disease have also been reported; Weissenbach *et al.* (1939) state that parathyroid adenomata are not always present. Decort *et al.* (1942) found a hypocalcaemia, with normal, and later raised, readings for plasma phosphatase; and Marti (1938) records a case which was cured after the removal of a normal parathyroid. That the disease may become quiescent is recorded by Pagniez *et al.* (1938), and Ostling (1939) reports a spontaneous cure in another patient. Neither the blood chemistry nor the parathyroid changes would thus appear to be constant, and the condition may be quiescent at the time of examination. It is therefore essentially the extent of the bone changes and the age of the patient which are the diagnostic features. The fact that a raised blood calcium is not found in osteitis fibrosa disseminata, with its more localized bone changes, suggests that there is no adenoma of the parathyroid, and it may be surmised that the difference between the two conditions is that produced by minor or major disturbances of the parathyroid.

In both diseases there arises the question of the exciting factor of the abnormal parathyroid metabolism. That other endocrine glands can affect bone pathology is shown, for example, by the arrest of the bone changes in osteomalacia following removal of the ovaries; it may also be surmised that the temporary hormonal imbalance of the climacteric, which sometimes has a marked effect on the endocrines controlling carbohydrate metabolism, may also upset normal parathyroid activity and cause the bone changes found in Paget's disease. The anterior part of the pituitary gland is closely connected with normal growth of bone, and the association of Albright's syndrome with osteitis fibrosa disseminata points to this area as the seat of the trouble in this disease. There is no evidence about the cause of the parathyroid abnormality in Recklinghausen's disease—whether it is primary in the gland itself, as suggested by the cure which follows removal of the adenoma, or whether it is merely a more catastrophic alteration of parathormone balance in an older patient.

The skull changes in the case here reported have several points of interest. They form a prominent feature of the

disease and are more pronounced than those in cases previously recorded, and both base and vault are involved. The exophthalmos of the left eye is due to the frontal-bone growth displacing it forward; Albright described a similar instance. No involvement of the inner table of the skull is seen and the pituitary fossa appears to be normal. The cyst-like spaces and trabeculation and expansions of the occipital region and the "blister" appearance on the surface of the parietal bones show the results of an active phase of the disease. The hyperostosis in the vault is similar to that of early Paget's disease; while the solid replacement of the mastoid cells and the surface growth in the sphenoidal air sinus would seem to conform to the osteitis fibrosa of the creeping periostotic type of leontiasis ossium described by Lawford Knaggs. Had the disease in the present case involved the maxillary sinuses and, more typically, the facial bones, it might have been considered a definite example of leontiasis ossium. Cases of leontiasis ossium with involvement of other skeletal bones have been described ("Osteitis Fibrosa Generalisata as a Complication of Leontiasis Ossium and Coxa Vera": *Sei-I-Kai M.J.*, abstract section, Dec., 1936, **55**, 1).

Finally, it may be thought that, instead of the fibrocystic diseases of bone being classified according to the region involved and the extent of the bone changes, many of them may be regarded as part of an abnormal parathyroid activity induced by alterations in the factors governing its metabolism and with trauma or vascular conditions playing a localizing part.

Summary

A case of osteitis fibrosa disseminata showing involvement of the skull and the right humerus and associated with certain blood changes is reported. It is suggested: (*a*) that the condition is one of endocrine abnormality in which the parathyroid hormone is dissociated from the normal endocrine balance; (*b*) that abnormality in the region of the pituitary or hypothalamus is the exciting cause and this may be due to haemolytic disease of the newborn; and (*c*) that the fibrocystic diseases of bone may be interrelated and their causal factors found in the different influences affecting parathyroid metabolism.

Previous history of icterus gravis neonatorum may be sought and a check made of the maternal Rh. Prolonged observation of the patient may reveal that the fibrocystic diseases of bone have periods of recrudescence and intermission.

I wish to thank Air Vice-Marshal Sir Andrew Grant, Director-General, Medical Services, for permission to publish the records of this case.

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OCCUPATIONAL DISEASES OF THE LENS AND RETINA*

BY

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This paper deals only with the diseases of the lens and retina that occur amongst glass and furnace workers, welders, and others exposed to excessive radiation at their work.

Radiant Energy and its Effects on the Eye

The visible rays occupy only a small portion of the radiation spectrum. The whole range of electro-magnetic radiation extends from the long electro-magnetic waves used in wireless and industrial high-voltage currents to the short gamma rays emitted from radium, uranium, and also during nuclear disintegration of atoms. Next to the electro-magnetic waves are the infra-red rays, which are generated by heated bodies (metal, glass, etc.) and are a source of danger to the eyes in foundries, glass factories, etc.

The long infra-red rays are mostly absorbed by the cornea. The short infra-red rays are transmitted through the cornea and are absorbed by the lens; a small part of these rays, however, reach the retina. The infra-red rays when absorbed by the tissues of the eye cause an increased activity in the tissue cells, and with it an overheating of the tissues. The cornea, which is air-cooled, suffers from no ill effects. The lens, on the other hand, when overheated through absorption of the short infra-red rays, undergoes marked changes, resulting in the formation of cataract. This form of "heat cataract" is found amongst glass-blowers, chain-makers, and foundry and furnace workers. The iris and ciliary body also absorb a good deal of the short infra-red rays; the heat generated in these tissues, however, is lost to the circulating aqueous.

The visible rays of the sun pass through all the media of the eye and on reaching the retina set up a series of biochemical changes which the brain interprets as vision. An excessive exposure of the eye to the sun rays may cause pathological changes in the eye.

The short and the long ultra-violet rays are absorbed by the cornea and the ocular conjunctiva, and only a very small amount of ultra-violet rays reaches the aqueous and the lens. The short ultra-violet rays set up biochemical changes in the conjunctiva and the cornea which manifest themselves "after a latent period" of several hours as conjunctivitis or a keratitis. These ultra-violet rays are present in high quantities in welding arcs (gas and electric welding), and are responsible for the "arc eye" which is extremely common amongst welders.

The *x* rays and gamma rays are of very short wavelength; they penetrate the tissues of the eye and have a direct action on the lens, causing the formation of a cataract. Vascular changes are also set up in the iris and the ciliary body.

Occupational Eye Diseases due to Radiant Energy

In the past glass-workers have been known to develop cataract. In glass-bottle making the finisher was exposed to the undiminished glare of the furnace or tank of molten glass. The infra-red rays emitted by the molten glass were

*Abstract of Hunterian Lecture given to the Royal College of Surgeons in June, 1947. It was also read at the International Congress of Industrial Medicine on Sept. 15, 1948.

absorbed by the lens, and after many years the glass-workers developed typical "heat cataract." Investigations by Dr. Robinson and Sir Thomas Legge in 1908 showed that 20% of glass-workers had lens changes. These investigations have led the Government authorities to recognize "glass-blowers' cataract" as an occupational disease, and it is now scheduled as such under the British Workmen's Compensation Act, 1929. The recognition of this eye disease and the discovery that it is due to infra-red rays (heat rays), and not as previously thought to the ultra-violet rays, have led to further investigations into the means of its prevention.

Physicists found that glass to which metallic oxides are added can absorb about 90% of heat radiation. This glass, which is dark green, should be used in goggles and protective screens. Many glass-workers still use dark blue glasses which do not absorb a great deal of infra-red radiation.

Protection of the workers is best achieved by using machines which incorporate protective measures. This guiding principle inspired the inventors of the modern machines which are used in the making of glass bottles. The machine automatically sucks up the molten glass, blows the glass, and delivers the bottles at the rate of 40 a minute. The use of these machines is responsible for the great drop in the incidence of cataract amongst glass-workers. In Great Britain during the period 1939–45 only 27 cases of cataract were notified in the glass industry to the Ministry of Labour. In the year 1945 only one new case of cataract was notified. These figures were supplied to me by Dr. Merewether, Chief Medical Inspector of Factories in Great Britain, by the kind permission of the Ministry of Social Insurance. These figures should be compared with those of "glass-blowers' cataract" found by Dr. Robinson 40 years ago.

"Heat Cataract" in Metal Industries

Investigations carried out by ophthalmologists in many countries have now fully established the fact that workers in various metal industries, whose eyes are exposed to the heat from molten or red-hot metal, develop cataract. In Great Britain cataract caused by "exposure to rays from molten or red-hot metal" is now scheduled as an industrial disease.

In the years 1939–45 there were 131 compensation cases of cataract in the metal industry, while in the glass industry there were only 27 cases. In 1945 there were 16 cases of cataract in the metal industry, and only one case in the glass industry.

Evidently very little is being done in the metal industry to prevent the development of "heat cataract." I have visited several foundries in and around London, and have found that the eyes of the furnacemen and foundrymen were exposed to the heat of the molten metal. No eye protection was used by them. In some foundries electric furnaces are used, and the workers looking after these furnaces inspect the molten metal for very short periods only; but the furnacemen looking after gas-heated furnaces are exposed to the heat of the molten metal for many hours a day without any eye protection. Only through adoption of efficient means of protection of the workers' eyes will the number of cataract cases in metal industries diminish.

Chain-makers' Cataract

In Staffordshire there are about 1,200 people working at chain-making, hand forging of chains. In 1921 Dr. Roberts, ophthalmologist of that district, reported that "heat cataract" is common among chain-makers. Since that date a number of cases of "chain-makers' cataract" have been reported by many other observers.

The workmen do not seek advice until their vision has become poor. At the age of 50 or over, by which time the chain-maker has been at his trade for some 35 years, lens changes typical of "heat cataract" often occur. It is interesting to note that the lens changes progress even if the chain-maker leaves his trade.

Dr. Lloyd Johnstone, ophthalmologist in Staffordshire, has seen 50 new cases of "chain-makers' cataract" during the past 10 years. The workmen are often advised to use dark glasses or goggles provided with "infrex glass" at their work, but they always claim that they cannot work with glasses, and it is very difficult to persuade them to do so while their sight is good.

Eye Hazards in Electric and Gas Welding

The most common types of welding used in industry are gas and electric welding. In gas welding oxygen or acetylene is used. Acetylene produces one of the hottest flames (6,000° F.—3,315° C.); oxygen welding reaches a temperature of 4,000° F. (2,204° C.).

All welders have at some time suffered from "arc eye," or "welders' flash." This condition is due to the exposure of the unprotected eye to the ultra-violet radiation of the arc in gas welding or electric welding. The welder is exposed to the radiation of his own work and to the reflected radiation from neighbouring workers. On examination one finds a conjunctivitis with an occasional superficial keratitis. The extent of the corneal involvement will depend on the length of the exposure to the arc and on the intensity of the radiation. The acute symptoms usually last one to two days. Repeated exposures to the arc produce a chronic blepharo-conjunctivitis with a chronic keratitis. The presence of the latter condition is often missed. A careful examination of the patient with a slit-lamp microscope will in such cases show the presence of multiple corneal erosions which stain with fluorescein.

The great heat generated by the welding arc is the source of intense infra-red radiation. Some of this radiation is absorbed by the eye and transformed into heat energy. Although most of this energy is absorbed by the cornea and conjunctiva, some of it (4 to 6%) may be absorbed by the lens. The lens cannot lose heat as easily as other parts of the eye and serious injury of the lens may follow.

Opinions are divided about the frequency of cataract among welders. However, many observers claim that lens opacities of the same type as have already been described occurring among furnacemen are to be found in elderly welders. Welders who may be suffering from some general disease or those whose state of nutrition is poor are liable to greater damage of the lens as a result of such physical factors as infra-red radiation. Eye injuries due to infra-red rays will go on occurring until better protective equipment is provided for the welders.

Retinal Injuries from Infra-red Radiation

Retinal injuries among welders are rare, but a number have been recorded. In these cases the central part of the retina shows definite changes. They may vary from a slight haziness of the macula to a pronounced oedema. The patients usually complain of a partial loss of vision, they may be aware of seeing a black spot in the centre of vision of one or both eyes, and their central vision may be very poor. Cases of mild oedema of the macula may fully recover; on the other hand, severe burns of the macula have led to a complete or partial loss of central vision. Ophthalmoscopic examination of the eyes many months after such an injury may show no macular changes, or a slight granular

appearance of the macula may be seen. In severe cases a "retinal hole" may be found at the macula.

I recently saw two men who were suffering from retinal burns from the welding arc. These patients were shown at the Congress of the Ophthalmological Society of the United Kingdom in March, 1947. Dr. White's patient was a fitter who was working 6 feet (1.83 metres) away from the welding arc. He had no eye protection when the arc was struck. A few days later he complained of blurred vision of one eye. He was seen a few weeks after the accident, and he then had a typical oedema of the macula, which later subsided. I saw him several months after the accident, and he then had an excavation (a hole) at the macula of one eye. The other patient, shown by Dr. Spence Meighan, was a welder. He attended at the Glasgow Eye Infirmary on March 16, 1945. He then complained of blurred vision of the right eye. His eyes were exposed to a flash from electric welding three days earlier. He had an oedema of the right macula. The vision of the right eye was 6/9. The left retina was normal; vision was 6/5. The oedema of the right macula subsided within a few weeks. The vision improved to 6/6. He now shows a fine pigmented disturbance at the right macula, and he has a small absolute scotoma at the point of fixation.

The retinal burns described above are largely produced by infra-red radiation of the welding arc. Investigations on the transparency of the ocular media to the radiation of various wavelengths have shown that 12% of the infra-red radiation of the welding arc reaches the retina of the unprotected eye.

Eye Injuries due to High-voltage Electric Currents

Burns of the body by high-tension electric currents are known to be sometimes followed by the formation of cataract in one or both eyes. A number of such cataracts have been reported by ophthalmologists. Such injuries occur in high-power electric stations where electricity is either produced or distributed.

The rarer type of injury to the retina may occur when a workman's eyes are exposed to a sudden electric flash from a high-voltage electric current. The following two cases illustrate the salient points of "electric eye injuries."

Case 1

An electrical fitter aged 39 was working in a trench on Jan. 27, 1946, repairing switch gear in a transformer substation. The voltage of the electric current in this station was 6,600. As a result of a short-circuit he was severely burnt; he was pulled out from the trench in an unconscious state and was admitted to hospital, where he remained unconscious for six hours. He was suffering from severe burns of the right side of the face, the right side of the scalp, and the right arm. He was away from work for three months. A week after his return to work he noticed a slight mistiness of vision of the right eye. He was then examined at an eye hospital, where he was found to be suffering from lens opacities of the right eye.

I examined him for the first time in March, 1947, fourteen months after the accident, and found the following: *Right eye:* Vision 6/24. The cornea and iris were normal. The slit-lamp microscope showed a dense central opacity in the anterior lens capsule and the underlying lens cortex. The peripheral parts of the anterior lens surface showed faint opacities, as though a veil was spread over the lens surface. The posterior cortex of the lens showed early changes. *Left eye:* This was normal in all respects and the vision was 6/5.

I examined him again in October, 1947, and he then told me that since August the vision of the left eye was not as clear as it used to be. Slit-lamp microscope drawings were made of both eyes. The left lens showed hundreds of small opacities on the anterior surface of the lens. The optical section drawing showed these opacities to be confined to the anterior lens capsule. The vision of the left eye was still 6/6. The drawing of the right eye showed that the central lens opacities ha become much denser. The optical section drawing also showe a pronounced thickening of the central part of the anterio lens capsule.

The outstanding features of this case are: (1) The righ lens developed "an electric flash" cataract three month after the injury. (2) The left lens remained clear fo eighteen months and then, about twenty months after th injury, it began to show lens opacities. These will mos probably increase and will eventually cause the loss o vision of this eye.

Similar cataracts have also been reported in people wh were struck by lightning. The causation of the "electri cataract" has never been satisfactorily explained. It is mos probably due to chemical changes in the ciliary body o the eye and the lens capsule during the passage of th high-tension electric current through the body.

"Electric flash cataract," as a result of an exposure o the workman's eye to a powerful electric flash, is rare, bu a few cases have been reported in the past. Retinal injurie from electrical flashes are much more common. Th following case illustrates this condition.

Case 2

A man aged 25 was working on Nov. 29, 1946, on a switc gear of an electric generator. A short-circuit in the switch ge caused a powerful electric flash. He suffered from no genera ill effects; he was not burnt. Three days later his left ey was slightly red and painful and he could not see with it. H was examined four days after the exposure to the electri flash. The vision of the left eye was then reduced to percep tion of light. The cornea, iris, and lens were normal. Th central part of the left retina was oedematous. There wer no retinal haemorrhages or exudates. The right eye wa normal and the vision of this eye was 6/5.

A few weeks after the accident the vision of the left e began to improve and the retinal oedema gradually subside He was away from work for three months. One year afte the accident the vision of the left eye was 6/9, the oedem of the left central retinal area had subsided, and the macul had a granular appearance with a few pigmented dots.

These retinal changes resulting from electric flashes hav been attributed by various observers to the infra-red radiatio and to the intense visible light rays. It is impossible to sta which of those rays are primarily responsible for the damag to the retina. The intensity of the light from a short-circu has been estimated to be equal to the light of 150,000 candles it is therefore probable that the photo-chemical changes pr duced by this intense light play an important part in producin the retinal changes.

Industrial Uses of X Rays and Radioactive Substances

X rays are used nowadays in many industrial processe —for example, in the examination of metals, micas, rubbe products, textiles, etc.

The recent research on atomic energy demands a va expansion of the work of extracting uranium and oth radioactive substances from minerals. Great care must b taken to protect these workers from the dangerous effect of radioactive substances. If such care is not taken w shall soon read reports about severe anaemias and cataract of the eyes among the workers in these industries.

The Ministry of Health has sent a circular to local authoritie and medical officers of health pointing out that two short films—on on diphtheria immunization and the other on burning and scaldin accidents to children—may be borrowed free from the Nationa Screen Service, Wallace House, 113, Wardour Street, London, W.1 if a cinema manager will include them in his programmes. The have been sent out before, but in some cases have been cut fro the newsreel for various reasons. When asking for the films, thre weeks' notice should be given of the date when the cinema manage has agreed to show them. They will be sent direct to the cinema.

FREQUENCY OF PENICILLIN-RESISTANT STAPHYLOCOCCI

BY

A. VOUREKA, M.D.

AND

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(From the Wright-Fleming Institute of Microbiology, St. Mary's Hospital, London, W.2)

Because of the large number of strains which are now grossly resistant to penicillin statements have been made that the drug is losing its value in staphylococcal infections. There was reason to believe that the number of resistant strains had been exaggerated, so an investigation was undertaken to ascertain the sensitivity to penicillin of staphylococci taken at random from out-patients.

The patients were those attending our asthma clinic and they were not at that time suffering from obvious staphylococcal infections. There was no risk of cross-infection, as they were swabbed on their first attendance and came from widely separated areas of the country. The strains were collected between January and June, 1948.

Swabs were taken from the anterior nares and cultivated on blood agar from which a number of single colonies were selected from each positive swab. By the appearance of the colonies and by the presence or absence of haemolysis and of coagulase production, 315 distinct strains were selected from 241 patients. Of these, 191 were albus, 121 aureus, and 3 citreus. There were 185 coagulase-positive strains and 119 coagulase-negative (11 strains were not tested). All were tested for sensitivity by the ditch-plate method as originally described by Fleming and Allison (1922). The strains to be tested were streaked on either side of the ditch and compared with the standard Oxford strain planted at the same time. A strength of 10 units of penicillin per ml. was used in the ditch. After overnight incubation the zone of inhibition between the edge of the ditch and the edge of the growth was measured with callipers. The results obtained are shown in Table I.

TABLE I.—*Resistance to Penicillin of Staphylococci Taken at Random*

No. of Strains	Distance of Inhibition from Penicillin Ditch	Remarks
Standard Oxford strain	16 mm. (average of all plates)	Standard control
95, 23, 75 } 203	16 mm. Standard ± 1 mm. „ ± 2 mm.	Regarded as the same as control
1	„ + 3 mm.	More sensitive
2	„ + 4 mm.	
1	„ + 6 mm.	
29	„ − 3 mm.	Less sensitive
30	„ − 4 mm.	
16	„ − 5 mm.	
3	„ − 6 mm.	
4	„ − 7 mm.	
26	„ − over 7 mm.	Provisionally classed as resistant

Penicillinase Production

On these figures, 26 strains may be provisionally classed as resistant; 24 of these were tested for their power to produce penicillinase. The method employed was as follows: The resistant strains were again planted on a ditch plate, similar to the one used before, with 10 units of penicillin per ml. of agar in the ditch. On each side of, and as close as possible to, the resistant strains streaks of the standard Oxford staphylococcus were planted. At some distance a similar streak of the standard Oxford staphylococcus was planted as a control. Whenever the resistant strains produced penicillinase the ditch end of the Oxford staphylococcus streak had a slanted instead of a straight edge, with the protruding point nearer to the streak of the resistant staphylococcus. The streak was noticed to encroach on the zone of inhibition as incubation continued, creeping gradually nearer to the ditch.

It was thus found that 11 strains produced penicillinase and 13 did not.

Titration of Resistant Strains

Of these 26 apparently resistant strains, 16 grew to within 2 mm. of the ditch and were regarded as definitely resistant, but it was decided to see exactly what concentration of penicillin would be tolerated by the remaining 10 strains which showed zones of inhibition of from 3 to 8 mm. from the ditch. The 10 strains were subcultured a few weeks after isolation, but unfortunately one failed to grow.

In testing the surviving nine strains dilutions of penicillin in broth from 12.5 units per ml. to 0.02 unit per ml. were used. The amount of the inoculum was 100 c.mm. of a 24-hour broth culture to 5 ml. of broth. The results are given in Table II. These show that of the 26 strains provisionally classed as resistant, one was sensitive to 0.5 unit per ml. and two to 1 unit. Two strains had recovered their sensitivity to penicillin and one had apparently become more resistant.

TABLE II.—*Titration of Partly Resistant Strains*

Strain	Inhibition on Plate: At Time of Isolation	Inhibition on Plate: At Time of Titration	Concentration Inhibiting (Units/ml.)	Concentration Not Inhibiting (Units/ml.)
1	Standard − 11 mm.	No inhibition	Not Inhibited by 12·5	—
2 and 3 ..	„ − 13 mm.	Standard − 13 mm.	12·5	6·25
4 and 5 ..	„ − 12 mm.	„ − 13 mm.	1·56	0·78
6	„ − 9 mm.	„ − 10 mm.	0·78	0·39
7	„ − 8 mm.	„ − 10 mm.	0·39	0·19
8 and 9 ..	„ − 10 mm.	„ − 8 mm.	0·09	0·045
Standard staphylococcus	„ − 11 mm.	„ − 7 mm.	0·045	0·02
	„ − 13 mm.	„ − 1 mm.		
		„ − 2 mm.		

If we take resistance to 1 unit per ml. as our arbitrary standard of a "resistant" staphylococcus, we have only 24 resistant strains out of 315 (including the two strains which in a few weeks acquired sensitivity and the one which died out)—that is, 7.6%. These 24 strains had the following characters:

Colour			Coagulase Test		Not Tested
Aureus	Albus	Citreus	+	−	
12	11	1	14	7	3

The proportion of resistant strains appears to be independent of whether the strains are aureus or albus, or coagulase-positive or coagulase-negative.

Summary

In a survey of 315 distinct strains of staphylococci, only 7.6% were found to be resistant to 1 unit of penicillin.

REFERENCE

Fleming, A., and Allison, V. D. (1922). *Proc. roy. Soc.* B., **94**, 142.

Housing associations provide residential accommodation for old people, and, though receiving financial help from local authorities, they retain the character of voluntary organizations. The National Old People's Welfare Committee has issued a useful pamphlet called "Why Housing Associations?" on how to start them, what their scope is, and who can help those interested in them. It is obtainable from the National Council of Social Service, 26, Bedford Square, London, W.C.1, for 6d.

Medical Memorandum

Creeping Eruption and Intestinal Strongyloidiasis

It is felt that, following observations taken over a period of three years, enough evidence has been accumulated to warrant the publication of a preliminary note on what appears to be a hitherto undescribed association between infestation with *Strongyloides stercoralis* acquired in the Far East and the condition of creeping eruption (larva migrans).

Creeping eruption resulting from the exposure of the unprotected skin of man to mature filariform larvae of canine, feline, and human hookworms in moist shaded soil contaminated by the infected faeces of dogs, cats, or man is well recognized by such authorities as Becker and Obermayer (1947), Belding (1942), Craig and Faust (1945), Faust (1939), Manson-Bahr (1945), National Research Council (1945), Stitt (1942), and Stitt, Clough, and Branham (1948). In the vast majority of cases, however, the skin lesions have mainly affected the hands and feet; in one case the migrating larva was observed wandering over the hand for as long as twenty-four years.

Stitt (1942, p. 1521) states: "Sandground (1939) describes a personal experience of 55 days of irritation, often infuriating, which followed on the spilling on the finger of infected larvae of *A. braziliense* and of a *Strongyloides* species, both obtained from the faeces of the cat. There were intermissions followed by reappearance of symptoms. A piece of skin was cut. The epidermal tunnels were empty, but the larva was found coiled in the corium 1.5 mm. from the surface." The reader is left with the presumption that the larva was that of *A. braziliense*.

In January, 1946, during a routine clinical examination of a patient admitted to the tropical diseases unit of Queen Mary's Hospital, Roehampton, it was noted that he had a tortuous linear urticarial weal affecting his buttock, starting near the anus and extending upwards towards the iliac crest. It was intensely itchy and progressed at a rate which was later found to vary from two to four inches (5–10 cm. an hour). This rate of progress is much in excess of that of the hitherto described forms of creeping eruption, which vary from a fraction of an inch to several inches in twenty-four hours. The patient was an ex-prisoner-of-war from the Far East and had worked on the Burma–Siam railway. Investigation showed him to be suffering from both ankylostomiasis and strongyloidiasis, but despite the successful treatment of the ankylostomiasis the creeping eruption persisted, as also did the strongyloidiasis.

It was subsequently noted without exception in a series of several hundred cases that this type of creeping eruption—i.e., a tortuous or serpiginous linear urticarial weal—occurred only in ex-prisoners-of-war from the Far East, and that they had been held in captivity in grossly insanitary conditions in Burma and Siam, with one case from Java. Their blood picture showed an eosinophilia varying from 10 to 25%, with a total white cell count often within normal limits giving absolute eosinophil counts of 700 to 2,000 per c.mm.

Apart from less than 2% of all cases of creeping eruption in which no helminth ova or larvae could be found on repeated microscopy, including after purgation and by concentration methods, all the cases have been associated with the finding of larvae of *S. stercoralis* in the faeces. In cases in which there was multiple helminth infestation the creeping eruption has persisted to date despite the eradication of all helminths other than *S. stercoralis*.

Specimens of larvae obtained from the faeces of these cases submitted to Professor Buckley, D.Sc., professor of helminthology at the London School of Hygiene and Tropical Medicine, for his opinion have been shown by him to differ in no way from the type species *S. stercoralis* (Bavay, 1876). He did state, however, in a personal communication, that some of the larvae examined were rather more mature in the cases associated with creeping eruption. Professor Buckley attempted to infect himself with fully matured larvae from one of these cases, b fortunately, in view of their resistance to treatment, the attem was unsuccessful. The creeping eruption begins in most cas in close proximity to the anus; it may extend downward affecting the upper third of the thigh, but has never be observed below this. It also affects the buttocks and t posterior and lateral aspects of the body as far upwards as t shoulders, but has not extended into the arms beyond t axillary folds. Anteriorly it occurs over the lower half of t abdomen, not affecting the external genitalia, and in son few cases the anterior surface of the chest has shown t characteristic lesions. It causes considerable itching an irritation.

Definite proof of the causation of the creeping eruption b wandering larvae of *S. stercoralis* is still lacking, as owing t the rapid rate of progress of the linear urticarial weal an its tortuous course the removal of a sufficiently large area skin to include the postulated larva would be unjustifiab Presumptive proof is also lacking, as it has been impossib as yet to find any method of treatment which will end cate the intestinal strongyloidiasis. Gentian violet, hexy resorcinol, antimonials such as sodium stibogluconate, lithiu antimony thiomalate, and "hetrazan" (1-diethylcarbamyl-methyl piperazine hydrochloride) have all proved uniform unsuccessful.

Fortunately the skin irritation has been found to be ame able to symptomatic treatment with the antihistamine group drugs.

It is hoped at a later date to publish a description in fu detail of this condition.

I am indebted to Dr. J. F. E. Prideaux, C.B.E., Director-Gener of Medical Services, Ministry of Pensions, for kind permission t publish this memorandum. I would also like to make due acknow ledgment of the very considerable help I have received from Dr. R. A Gordon Smith, whose careful case histories and clinical examinatio played no small part in the establishment of this clinical associatio to Drs. Mackenzie Douglas and C. C. Chesterman for much helpf advice; and to Professor Buckley for the kind interest he has sho and for his work on the morphological details.

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The Ministry of National Insurance states that every employee responsible for telling his employer of any accident he may suffer work. This is one of the provisions of regulations made under t Industrial Injuries Act. The employee's notification to the employ may be oral or in writing. To facilitate this part of the procedu certain employers are required to keep readily accessible an accide book in which, if the employee chooses, he may enter the particula required by the regulations. These are his full name, address, an occupation; date and time of the accident; the place where happened; the cause and nature of the injury; and the nam address, and occupation of the person giving notice if it is not t injured person. The obligation to keep an accident book appli to every employer who normally employs, at the same time, ten more people on or about the same premises in connexion with trade or business, as well as to every owner or occupier, who is employer, of any mine or quarry or of any premises subject to t Factories Act, 1937. If an accident occurs an employer is al responsible for investigating the circumstances of it and for notin any discrepancies in the facts. If the employee makes a claim und the Industrial Injuries Act the employer will be asked by the loc National Insurance Office for a report on the circumstances found by him.

Reviews

SPEECH THERAPY

Twentieth Century Speech and Voice Correction. Edited by Emil Froeschels, M.D. (Pp. 321. No price given.) New York: Philosophical Library.

In spite of its somewhat popular title and startling binding in scarlet and blue this book contains much sound and scientific matter of considerable interest to the neurologist, psychiatrist, and speech therapist. Eighteen contributors have written sections in addition to Dr. Froeschels.

The first chapter is on the anatomy and physiology of the vocal apparatus and also the development of speech in the child, but the author does not describe the central mechanisms of speech. With regard to aphasia, he maintains that the "speech-pathologist cannot agree with many psychologists that there is little or no cerebral localization of speech function, nor can he accept exact anatomical localization." In general, it seems that he should follow the lead of the psychologist in admitting that certain areas subserve certain linguistic functions more than others but that the entire brain is needed for normal speech activity. The suggested classification of aphasic manifestations is rather complicated but includes the more generally accepted forms; this section is presented mainly from the viewpoint of the speech therapist and contains sound practical advice on the treatment of the aphasic patient.

The chapter on absent or delayed development of speech, "alalia," as it is here termed, seems to be unduly involved and does not sufficiently emphasize the congenital mental deficiency (amentia) that is often found. For the condition of word or language deafness, which in Britain is often referred to as "congenital auditory imperception," the term "psychic deafness," used by Heller, has been adopted. This designation is somewhat misleading, for it might well include hysterical deafness—an objection that is admitted. The difficulties of diagnosis between the various forms of apparent deafness in children are well appreciated. Although there is no doubt that audiometry is the most exact method of determining hearing loss, its application to young children up to six or eight years old has not proved very satisfactory because of the degree of active mental co-operation required of the patient. The author of this section states that "to date there has been no approach other than a differential diagnosis" in cases of "psychic deafness" (or auditory imperception). She would be unaware that a fair amount of work continues to be done in Britain not only in differential diagnosis but also in therapy by those interested in the treatment of speech disorders.

Discussing the controversial question of the aetiology of stuttering or stammering, the writer rejects the theory of "handedness" and considers the condition to be a psychoneurosis. Other sections of the work include one on "dyslalia" and two especially useful chapters on (1) speech therapy in cases of cleft palate and (2) voice training after laryngectomy. While some chapters are eminently readable, others can be regarded as suitable only for reference.

C. WORSTER-DROUGHT.

OCCUPATIONAL THERAPY

Principles of Occupational Therapy. Edited by Helen S. Willard, B.A., O.T.R., and Clare S. Spackman, B.S., M.S.inEd., O.T.R., with 19 collaborators. (Pp. 416; 46 illustrations. 25s.) Philadelphia and London: J. B. Lippincott Company. 1948.

Occupational therapy is defined as any activity, mental or physical, medically prescribed and professionally guided to help a patient recover from disease or injury. It shortens convalescence and improves the degree of recovery through techniques (well described in this book) which attack inactivity and idleness on the part of the patient. The authors' description of the ideal organization of a hospital department of occupational therapy may well inspire physiotherapists in Great Britain to demand better accommodation and equipment and a more important place in the hospital hierarchy. They ably advocate the need for medical men to give initial instructions and follow up the cases regularly during treatment to assess progress. Every therapist is taught that occupational therapy must be medically prescribed, but every doctor is not. How often does the physician or surgeon in this country, or in the U.S.A. for that matter, give detailed instructions, or even any instructions, to the occupational therapist? As well as the diagnosis, the views of the doctor responsible for the patient are necessary on matters such as the mental or temperamental characteristics of the patient, his special aptitudes or interests, and the duration and frequency of work to be undertaken. Those sections of the book on the treatment of special disabilities—mental illness, paediatric diseases, trauma, paralysis of various types, arthritis, blindness, and tuberculosis—will be of wide interest and help to physiotherapists. The variety of individual experience ably presented makes this volume a valuable contribution to the subject.

DONALD STEWART.

BERGEY'S MANUAL

Bergey's Manual of Determinative Bacteriology. By Robert S. Breed, E. G. D. Murray, and A. Parker Hitchens, assisted by Sixty Contributors. Sixth edition. (Pp. 1,529. £4 2s. 6d.) London: Baillière, Tindall and Cox. 1948.

The medical bacteriologist who finds himself discussing a problem of bacterial classification and nomenclature is soon likely to discover that the criteria which he regards as important may be very different from those considered valuable by his colleagues in allied sciences. For example, the clinical pathologist and the veterinary bacteriologist may think of coliform bacilli in terms of potential pathogenicity and may take the view that antigenic structure is the most promising criterion for classification; the water bacteriologist is interested in the organisms as an index of faecal pollution and prefers to define strains in terms of the most rapid and reliable biochemical test; the public health bacteriologist is concerned with both viewpoints and also with that of the dairy bacteriologist, whose problem may be the identification of coliform organisms in milk in relation to their sources and effects; and, further, there is the scientist who would classify the organisms on the evidence of genetic relation with other species. It is not surprising therefore that each of these workers is apt to disregard the broader aspects and to adopt a classification satisfactory for his own limited day-to-day problems. Be that as it may, it is clearly desirable that the name applied by one should be understood by all, that there should be agreement on methods of naming, and that a complete list of existing names should be available for consultation before new genus or species names are proposed. As a book of reference in these respects, *Bergey's Manual of Determinative Bacteriology* is unrivalled.

The last edition of the *Manual* appeared in 1939. The new edition is bulkier, and, since the text is rearranged in double columns, it contains much more material. The book is the work of the three editors, assisted by sixty expert contributors who have been responsible for individual sections. In general, the criteria used in classification are morphology, biochemical characters, and to some extent pathogenicity. A first reaction to some of the more formidable lists—for instance, the 148 species of *Pseudomonas*—is to ask whether all those species are really necessary, but further perusal reveals that some of them are pathogens of codfish and caterpillars, gladioli and Gila monsters, about which the medical bacteriologist can hardly pass judgment. Rather one must be grateful to the authors for their wisdom in consigning to appendices very many names of organisms appearing in the literature but rejected because they are identical with recognized species, or inadequately described, or no longer available for full study. The relegation of much larger numbers of names to the appendices is a welcome feature of the new edition. In one genus this results in the recognition of less than a quarter of the species appearing in the previous edition, and there is no doubt that drastic pruning of other sections on these lines would greatly increase the value of the book.

Few in Britain will quarrel with the main classification into families, and some of the generic changes, such as the disappearance of *Eberthella*, will be welcomed. Other genera,

such as *Escherichia*, *Serratia*, and *Listeria*, and many of the specific names, find less ready acceptance. The golden staphylococcus becomes *Micrococcus pyogenes* var. *aureus*. In a supplement bacteriophages and filtrable viruses are classified in an Order *Virales* with 13 families, 32 genera, and 248 species. The generic names, reminiscent of the characters in a classical drama, have been bestowed with ingenuity. They range from *Briareus*, the hundred-armed giant (chicken-pox–measles group), and *Scelus*, the rascal (herpes), to *Rabula*, the pettifogger (mumps), and *Charon*, the ferryman of the lower world (yellow fever group). The influenza virus is *Tarpeia*, the Roman maiden who-treacherously opened the doors of the citadel to the enemy. The criteria used for classification in this section, which has been prepared by Dr. F. O. Holmes, include particle size, resistance, vectors, natural hosts, and type of disease. A new and valuable feature is an index of sources and habitat of the various organisms.

As a detailed source of information relating to descriptive bacteriology Bergey's manual is unique. The editors and their collaborators are to be congratulated on the skill with which they have carried out a laborious task in which it was manifestly impossible to please everyone. Most puzzles in bacterial identification will doubtless continue to involve at some stage a reference to "Bergey." Sometimes the researcher will be rewarded, at other times he will be inextricably lost in a maze of strange species. Although the manual is unlikely to be regarded in Britain as the last court of appeal, progress demands that there should be a provisional outline classification, and for this purpose "Bergey" is sure of wide acceptance. There is no reason to suppose, however, that any recommendation that this classification and nomenclature should be universally adopted would meet with the unqualified approval of British bacteriologists.

J. C. CRUICKSHANK.

FAMILY TROUBLES

Troubles of Children and Parents. By the late Susan Isaacs, C.B.E., D.Sc., M.A. (Pp. 236. 8s. 6d.) London: Methuen and Co. 1948.

The late Susan Isaacs, under the pseudonym of Ursula Wise, ran an advice bureau in the *Nursery World* from 1929 to 1936 on the subject of difficult children. This rather unusual volume consists of a selection of questions and answers from her experience during that period. They cover a wide range of difficulties met with in the rearing of relatively normal children.

The anxiety of the parents is most evident in the numerous letters from them published in this book, and, as the author points out, the difficult behaviour of the children is often no more than a reflection of the parental anxiety. It is most important to realize the wide range of "normality" which may be observed in the emotional development of the young child and how under the influence of patience and good sense difficulties will disappear and development will proceed normally. Cases of more serious abnormality, which may require elaborate specialist investigation and treatment, have been excluded from this volume so far as was possible, since the material was obtained in an indirect way. This suggests the obvious criticism that it is dangerous to apply what may be a wise answer in one case to the difficulties of another, since every child is a specific individual. Further, more or less prolonged observation of a child is necessary before the precise significance of any particular behaviour can be estimated.

Nevertheless, this collection of case histories, though not fully investigated or followed up, will show the student of humanity—and everyone ought to be such a student—how wide is the range of difficult behaviour and how the various aspects of behaviour overlap from case to case. It also shows how important it is for parents to regulate their own lives and not to panic about their children. They will only do this by acquiring more knowledge and understanding, and this book will help to give it. Child-guidance clinics have their place—and an important one—especially when the parents are failing in the management of their child, but not every girl who tells a lie or steals a sweet or every boy who breaks a plate or now and then wets his bed need be taken to such a clinic.

R. G. GORDON.

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*]

Biological Reactions Caused by Electric Currents and by X-Rays. By J. Th. van de Werff, M.D., D.Sc. (Pp. 203. 30s.) London: Elsevier. 1948.

A study of excitation in nerves and of the biological reactions caused by *x* rays.

Modern Trends in Public Health. Edited by A. Massey, C.B.E., M.D., D.P.H., D.P.A. (Pp. 581. 50s.) London: Butterworth. 1949.

Articles by British authorities on many aspects of public health.

George Fox's Book of Miracles. By H. J. Cadbury. (Pp. 162. 21s.) Cambridge: University Press. 1948.

A reconstruction from records of an unknown book by the founder of the Society of Friends.

Viral and Rickettsial Infections of Man. Edited by T. M. Rivers, M.D. (Pp. 587. 45s.) London: J. B. Lippincott. 1948.

Intended as a practical approach to therapeutic problems of viral and rickettsial diseases.

Some Aspects of Oculo-Refractive Technique. By M. Cholerton, F.B.O.A., F.S.M.C., D.Orth. (Pp. 148. 21s.) London: Hammond, Hammond. 1948.

An account of the clinical examination of the eye and visual function for the optician.

Eden and Holland's Manual of Obstetrics. By A. Brews, M.D., M.S., M.R.C.P., F.R.C.S., F.R.C.O.G. 9th ed. (Pp. 796. 42s.) London: J. and A. Churchill. 1948.

Incorporates much new material from recent research.

The Transactions of the Hunterian Society. Vol. 6. Session 1947–8. (Pp. 158. No price.) London: Metropolis Press. 1948.

Includes lectures and discussions on urological symptoms, menstrual disorders, vascular obstruction, rheumatism in the time of John Hunter, and neuritis.

Artificial Pneumothorax in Pulmonary Tuberculosis. By T. G. Heaton, M.B. 2nd ed. (Pp. 292. 20s.) London: Macmillan. 1947.

A summary of modern theory and technique.

An Introduction to Pharmacology and Therapeutics. By J. A. Gunn, C.B.E., M.A., M.D., D.Sc., F.R.C.P. 8th ed. (Pp. 301. 8s. 6d.) London: Geoffrey Cumberlege. 1948.

Includes new sections on chemotherapy, penicillin, sex hormones, and coagulation of the blood.

The Selected Writings of William Clowes. Edited by F. N. L. Poynter, B.A., F.L.A. (Pp. 179. 15s.) London: Harvey and Blythe. 1948.

William Clowes led a varied life as a surgeon in the Elizabethan age.

General Elementary Science for Students of Chiropody. By N. Caldwell, B.Sc., M.R.C.S., L.R.C.P., L.M.S.S.A., C.P.H., F.R.I.P.H.H. (Pp. 231. 15s.) London: Charlesworth and Wiles. 1948.

An introduction to chemistry and biology.

Anaesthesia for the Poor Risk. By W. W. Mushin, M.A., M.B., B.S., F.F.A. R.C.S., D.A. (Pp. 65. 7s. 6d.) Oxford: Blackwell. 1948.

A collection of essays on recent work.

Aviation Medicine in its Preventive Aspects. By J. F. Fulton, O.B.E., M.D., D.Sc. (Pp. 174. 12s. 6d.) London: Geoffrey Cumberlege. 1948.

The Heath Clark lectures on the historical background of aviation medicine.

Atlas of Neuropathology. By W. Blackwood, M.B., F.R.C.S.Ed., and others. (Pp. 199. 35s.) Edinburgh: E. and S. Livingstone. 1949.

Annotated photographs, some in colour, for the clinician or pathologist beginning the study of neuropathology.

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MEDICAL STATISTICS IN THE ARMY

From the days of Pringle, Tulloch, and Balfour the value of medical statistics to the Army medical services has been recognized. To begin with they were mainly of use for the information they provided about pensions and the purchase of commissions, but by 1861 a central statistical branch of the Army Medical Department had been set up, charged with the tasks of estimating the major sources of wastage, of throwing light on the importance of environmental factors in the causation of individual diseases, and of assessing the effects of treatment on the fatality and on the duration of diseases. At the beginning of the second world war the Army medical services had neither the staff nor the administrative machinery necessary for the pursuit of statistical information concerning the health of a national army. There was a small statistical section which was not expected to do more than to subserve War Office commitments to the Ministry of Pensions and to supply information concerning hospital accommodation. But as the war proceeded more generous provision was made for medical statistics, which became the responsibility of the wartime Directorate of Medical (Statistical) Research. The situation was quite novel, for the E.M.S., which then treated a very high proportion of the military sick in the United Kingdom, did not come within the orbit of military medical documentation, and, moreover, the flow of information back from the Middle East was continually interrupted. By the end of the war it had not been possible for this directorate to make final analyses of the material provided by the campaigns in North-west Europe and in South-east Asia. The Army Council therefore thought it desirable to present without further delay the products of this wartime Army statistical mechanism, since it seemed that the information provided might be of interest not only to the medical services of the armed Forces but also to all those within medicine who are concerned with or are interested in the use of statistics as an instrument of scientific inquiry.

The report[1] which has recently been issued by the War Office contains a historical introduction by Professor Lancelot Hogben, F.R.S., who was a member of the Directorate of Medical (Statistical) Research and who is now honorary consultant in Army medical statistics. Out of his experience there have come two reflections:

How easily analysis of data can be prejudiced by insufficient acquaintance with limitations inherent in design, rendition, and extraction of relevant information from basic documents, if the statistician works in a consultative capacity out of day-to-day contact with the machinery for issue and assembly of documentary material; and how greatly the output of such machinery may fall short of its potential usefulness unless constantly adapted to new needs in the light of conference between clinicians who appreciate the scope for profitable application of statistical procedures and statisticians alert to the biological significance of their subject matter.

The report contains a number of sections, each concerned with a group of problems of more or less the same kind. These are the results of the scientific activity of Professor Hogben and his colleagues during the war years, and many of them have formed the subject matter of papers published in scientific journals since. The figures relate, among other matters, to total wastage, morbidity in the United Kingdom, age in relation to wastage, medical man-power and utilization. Then follow sections on the statistical aspects of surgical battle casualties and injuries, of psychiatric disorders, and the major sources of wastage of a medical kind. The closing section illustrates the manner in which the efficacy of certain therapeutic measures was assessed. Some 46 charts convert the prose of this report into informative diagrams.

It is well that out of the catastrophe of war there should come some little profit in the form of added knowledge; for this can become translated into wisdom and thus create the possibilities for the advancement of human dignity. This small statistical instrument, used in circumstances of considerable difficulty and hindered by the incessant demands made upon it for advice of an urgent but transient importance, revealed much information of more than passing interest. For example, in 1943–4 the commonest medical reasons for the discharge of soldiers (other ranks) from the Army were in this order: psychiatric disorders, peptic ulcer, tuberculosis, bronchitis. In the case of the A.T.S. (other ranks) the commonest causes were psychiatric disorders and tuberculosis. Discharge from the Army because of disease as opposed to injury represented an annual loss of 2% of the Army's total strength. Pregnancy accounted for about four-fifths of all discharges of A.T.S. (other ranks) recommended on medical grounds. The pregnancy rate increased steadily over the three-year period. These statements refer, however, not to the morality of the auxiliary but to the varying proportion of married women among them. The discharge rate among married women for this reason remained around 450 per 1,000, that among single women 25 per 1,000.

The most frequent causes of admission to hospital because of sickness in the United Kingdom were: psychiatric disorders, gonorrhoea, tonsillitis, bronchitis. Accidental injuries accounted for one-seventh of the total admissions. The diseases which caused most man-power wastage (days spent away from the unit and in a medical establishment) were: hernia, psychiatric disorders, internal derangement of the knee, and appendicitis. On the average each soldier spent 3% of his time (11 days) in hospital and convalescent depot—8½ days on account of sickness, 2½ on account of accidental injury. Half of the military sick in hospitals were treated exclusively in military institutions, a quarter exclusively in E.M.S. hospitals; the remaining quarter consisted of the men who were transferred

[1] *Statistical Report on the Health of the Army, 1943–1945.* 1948. London. H.M.S.O. Price £1 net.

from hospital to auxiliary hospital or convalescent depot. The mean stay in the E.M.S. hospitals was about 25% higher than in military hospitals. Analysis of the hospital records at home demonstrated that in about 1 of every 8 primary operations for hernia the original condition reappeared within 12 months, that the fatality rate for perforated peptic ulcer was about 6%, that gastric ulcer was about twice as apt to perforate as was duodenal, and that no less than 50% of cases of internal derangement of the knee were the result of football. There were striking and significant differences in respect of infestation by *P. capitis* among intakes of A.T.S. in different parts of the country. Scotland had much higher rates than England, while the rate in Northern Ireland (65% of the intakes in 1944) was indeed spectacular.

Among the causes of wastage in the Middle East during 1943–4 diseases of the ear, nose, and throat were outstanding. In Italy more than one-quarter of the men admitted to hospital for the treatment of disease were suffering from malaria or venereal disease. Battle casualties and accidental injuries made up one-quarter and one-tenth of the total man-day wastage respectively. The mean duration of stay in hospital and convalescent depot was about 3½ weeks for disease, 4 weeks for accidental injury, and 7 weeks for battle casualty. Psychiatric disorders were relatively far less common both in Iceland and the Faroes than in the United Kingdom. In one and the same theatre of war Indians and Africans were less liable to diphtheria and more liable to tuberculosis than troops of European stock. Canadians and New Zealanders were specially prone to infective hepatitis, Indians to malaria and to eye diseases, Africans to dysentery and pneumonia, and Europeans to diseases of the ear, nose, and throat. The case fatality of enteric fever, tuberculosis, and typhus was relatively high among the Africans, that of tuberculosis relatively high among the Indians. Cerebrospinal fever was less fatal among African than among United Kingdom troops.

An analysis of the figures relating to the initial stages of the assault upon Europe showed that trunk wounds caused more deaths than any other type of wound, that head and neck wounds, as would be expected, were relatively important causes of death, that under 1% of arm wounds proved fatal, that leg injuries or multiple wounds accounted for nearly two-thirds of the long-term hospital cases, that nearly 30% of the casualties evacuated had multiple wounds, that about 5% of the injured received more than four wounds, that 15% of single wounds involved bones, that 90% of all wounds were due to either shells, mortar bombs, or gunshot in equal proportion, that about 80% of gunshot wounds were single injuries, and that even in battle much of the treatment given by surgical units was for injuries not due to enemy action.

It is, of course, impossible to do more than attempt to attract the attention of as many as possible to this report, which deserves the careful study of those who recognize the value of the information disclosed by statistics in the shaping of policy and in the assessment of the results of therapeutic trial. That the work of the Army medical statistician in war was appreciated is shown by the fact that at the end of the war this statistical mechanism was continued by the creation of the post of honorary consultant in Army medical statistics and by the absorption of a rump of the Directorate of Medical (Statistical) Research into the Directorate of Hygiene.

MORTALITY OF BLEEDING PEPTIC ULCER

The mortality of haematemesis and melaena from bleeding peptic ulcer has been a subject of interest and debate for many years. In the early part of this century the mortality was not excessive. The cases reported by Bulmer[1] for 1902 to 1917 showed a mortality of 7%. During this period there were many cases of acute ulcers in young women and the mortality was low. This type of ulcer became less frequent, and to-day not more than 5% of admissions for haematemesis occur in women under 40, compared with nearly 50% forty or so years ago. From 1920 to 1930 the decline of ulcer in young women was associated with a marked increase in chronic ulcer in men, and this, as Tidy[2] has shown, was reflected in the rise in national deaths from ulcer in men over 40. These changes in the sex and age distribution of acute and chronic ulcers probably accounted for the much higher mortality from haematemesis from bleeding peptic ulcer reported in this country in the nineteen-thirties. Most hospital figures[3-7] then showed a fatality rate ranging from 13% to 25%. It seemed probable that the institution of liberal feeding by Meulengracht[8 9] in 1935 and the large blood transfusions introduced at the same time by Marriott and Kekwick[10] would greatly improve the prognosis. This hope was substantiated by many short series of cases published in support of liberal feeding and by the experience of Meulengracht in Denmark.

Geographical differences of ulcer distribution make it difficult to compare series from different countries, and it is safer to study figures from one country only. Two comprehensive investigations in Britain have, indeed, recently shown a substantial decrease in mortality from bleeding ulcer. Smith[11] in 1945 reported a 6% mortality among 180 cases treated in Glasgow, and Avery Jones[12] two years ago reported 8% of deaths among 615 cases treated in a district hospital in North-west London. Unfortunately, three further series show that there has not been a uniform fall in mortality. For example, Baker[13] reported 576 cases with 77 deaths (13.4%) over a six-year period, 1940–5, from Birmingham. Tanner[14] had 62 deaths (10.5%) among 586 admissions to a South London hospital between 1941 and 1948. In this issue Lewin and Truelove present a valuable analysis of 305 cases of bleeding peptic ulcer admitted to the Radcliffe Infirmary as emergencies during the period 1938–47, with 58 (19%) deaths.

[1] *Lancet*, 1927, **2**, 169.
[2] *British Medical Journal*, 1944, **1**, 677.
[3] Chiesman, W. E., *Lancet*, 1932, **2**, 722.
[4] Cullinan, E. R., and Price, R. K., *St Bart's Hosp. Rep.*, 1932, **65**, 185.
[5] Burger, G., and Hartfall, S. J., *Guy's Hosp. Rep.*, 1934, **184**, 197.
[6] Hellier, F. F., *Lancet*, 1934, **2**, 1271.
[7] Aitken, R. S., Ibid., 1934, **1**, 839.
[8] Ibid., 1935, **2**, 1220.
[9] *British Medical Journal*, 1936, **1**, 204.
[10] *Lancet*, 1935, **1**, 977.
[11] *Glasg. med. J.*, 1945, **144**, 129.
[12] *British Medical Journal*, 1947, **2**, 441, 477.
[13] *Guy's Hosp. Rep.*, 1947, **96**, 1.
[14] *British Medical Journal*, 1949, **1**, 110.
[15] Hurst, A. F., and Babey, A. M., *Guy's Hosp. Rep.*, 1936, **86**, 129.

It is difficult to compare different series, and the many fallacies have been discussed by Avery Jones. It is noteworthy that in the three recent series[11 12 15] with the lowest mortality the cases were under the continuous care of those who recorded the results of treatment. But the more important consideration must be the age distribution of the series. Lewin and Truelove demonstrate very clearly the great increase in mortality with advancing years, the fatality rate of the over-fifties being about five times as great as that of the under-fifties. Over the age of 60 the risk of haemorrhage increases greatly, as might be expected. Lewin and Truelove found that, contrary to general belief, a previous episode of bleeding does not increase the fatality rate. They were also unable to show that a long history of ulcer symptoms heightens the risk, which is correlated with the age of the patient.

In a comparison of different series, particularly when assessing therapy, it is essential to allow for varying age distribution. Thus, the low mortality of Smith's cases cannot, without further analysis, support his arguments against transfusion. In his series 12% of patients were over 60, compared with 29% in the Oxford series. The high mortality from Birmingham and Oxford leaves no grounds for complacency with medical treatment, and more information is urgently needed on modern experience with surgery for this emergency. Avery Jones's experience showed that the mortality was particularly high among patients over middle age with chronic ulcer and who had recurrent haemorrhage after admission to hospital: in this group there was a mortality of over 50% under medical treatment, and here there should be opportunity for surgery.

Cases may be conveniently classified on admission into two groups. First are those with probable chronic ulcer; they should have a history of recurrent dyspepsia of moderate severity, with recent pain for at least three weeks and, possibly, with previous *x*-ray or other evidence of ulcer. Approximately two-thirds of these cases have no further haemorrhage after admission to hospital, but some may need subsequent elective surgery. The remaining one-third will have brisk recurrent haemorrhage; it is in this group particularly that surgery may prove of the greatest value for patients over 45. The second main group are those with an acute lesion. Though they may have had a long history of dyspepsia it has usually been slight, and there has seldom been pain for more than two weeks; indeed, pain has often been absent. About three-quarters of these cases have no subsequent bleeding after admission, but the remaining quarter may bleed briskly and repeatedly. Nevertheless, with adequate transfusion the mortality remains low, and it is improbable that surgery has much to offer other than the exclusion of a rare diagnosis such as leiomyoma. Lewin and Truelove use a similar grouping for their series, and for assessing the role of surgery the probable clinical diagnosis on admission would be of greater value to others than results based on the final diagnosis. Sporadic surgery for haematemesis tends to be disappointing, as operation has often been reserved for patients with protracted bleeding. The present need is for the results of surgery based on a clear-cut policy with well-organized arrangements for co-operation between the physicians and surgeons. The recent experience of Tanner[14] is most encouraging, but his surgical data need presenting in greater detail. In view of the high proportion of cases over 60 (38%) his fatality rate of 10.5% for the whole series is not excessive. His last 60 admissions include 35 subjected to emergency operation, with only two deaths.

PUBLIC HEALTH SALARIES

At a time when remuneration of general practitioners, consultants, and specialists has been the subject of much controversy, discussion, and negotiation, the B.M.A. has not overlooked the salaries of that important group of medical men and women employed whole-time in the public health service. There has been considerable delay in tackling this problem because of the attitude of the Associations of Local Authorities. For some months now efforts have been made to begin through the Whitley machinery a much-needed review of the situation. At the meeting of the Council on Jan. 12[1] the Council decided to inform the Minister of Health of "the serious unrest and dissatisfaction among members of the public health service occasioned by the continued delay in opening negotiations on the new scales and conditions of service." The Council also decided that if by Feb. 28 negotiations had not begun through the Whitley machinery advertisements from local authorities would not be accepted by this *Journal* unless the salaries in the public health service conformed with the Association's proposals for the new scales. These new scales were given in the *Supplement* of Jan. 29. It should be emphasized that the new scales included a betterment factor of 20%. But this factor has not been accepted by the Association, and when negotiations are started it will be related to the betterment factor for other sections of the profession now being discussed with the Ministry of Health.

The present dispute is concerned only with the salaries of those employed whole-time in the public health service, who are now remunerated according to the terms laid down in the Askwith Memorandum. For example, under the Askwith scale the highest minimum salary that a medical officer of health in an area with a population of 100,000 can earn is £1,300, and the scale does not fix annual increments or a maximum salary. Under the Association's provisional proposal (provisional because the betterment factor of 20% is not accepted) the minimum salary would be £1,920, with annual increments of £120 up to the maximum salary of £2,400. The Associations of Local Authorities no doubt fear that if the salaries of their whole-time medical officers are increased they will have to face similar demands from other professional groups employed by them. The medical profession will not, however, accept this as an excuse for underpayment of medical officers. Nor can there be any sound reason for refusal on the part of the Associations of Local Authorities to open negotiations through the Whitley machinery, especially as this course of action is approved by the Ministry of Health. Until these negotiations are opened advertisements for vacancies in the public health service will be refused by the *Journal*, and in this we have the co-operation of the *Lancet*, *Public*

[1] *British Medical Journal Supplement*, 1949, 1, 34.

Health, and the *Medical Officer*, which have agreed on a similar line of action.

No one has yet computed the economic benefits to this country which have resulted over the past 100 years from the activities in the finest public health service in the world of men and women who have worked for a small enough financial reward. It is but bare justice that their modest claims should be met—and met promptly.

THE INHERITANCE OF ACHONDROPLASIA

The work of the Institute of Human Genetics of the University of Copenhagen was described in this *Journal* a few months ago.[1] Most of the monographs published by the Institute appeared during the war and so did not become known in this country until it was over. In a recent annotation[2] we discussed Andreassen's monograph on haemophilia in Denmark, and in the present annotation the third volume of the series, a study of chondrodystrophic dwarfs in Denmark by E. Trier Mörch,[3] is reviewed. As in the study on haemophilia, an attempt was made to trace and examine every living achondroplastic dwarf in Denmark: 86 were found, and it is believed that the survey was in all probability complete or almost complete. In addition information was obtained about 22 recently dead subjects. The main purpose of the work was to elucidate the genetics of the condition, but there is much of clinical and general interest also, and the literature has been carefully surveyed; 442 references are given. The author has made use of historical records, and a number of famous portraits are reproduced. He describes achondroplasia in other animals and gives a full clinical and pathological description of the condition in man. In the course of the survey many deformed persons who turned out not to be achondroplastic dwarfs were brought to the author; the result is a particularly useful chapter on differential diagnosis. A review of the literature showed that while conception and pregnancy in the achondroplastic woman are normal the chances of obtaining a living child following vaginal delivery are very small and the risks to the mother are considerable; caesarean section, however, gives good results.

It had previously been assumed by a number of writers that the condition was due to a dominant gene with a high mutation rate, giving a considerable proportion of sporadic cases. Until the completion of Mörch's work, however, this opinion did not rest on very sure foundations and was indeed denied by some. Mörch comes to the clear conclusion that there is a very high mutation rate—1 in 10,000 in terms of individuals, or 1 in 20,000 in terms of chromosomes. He also concludes from maternity hospital records that 80% of the affected children die during the first year of life. If they survive this period their expectation of life is not abnormally short, though their reproductive rate is less than that of normal individuals. The consequence is that the majority of achondroplastic dwarfs are the result of a mutation in one or other parent and so are the first to be affected in their family group. Of the 108 dwarfs studied there were 90 sporadic cases and 18, belonging to eight sibships, in which the gene had been received from a similarly affected parent. There was no instance of transmission through more than two generations, though transmission through three and even four has been occasionally reported.

There are two important tests that must be applied before sporadic cases can be accepted as due to mutation. Such persons, when they in turn have children, must, if the gene is dominant, have affected and normal children in equal proportions. In glioma of the retina, for instance, this requirement is not in all probability fulfilled; but the sporadic chondrodystrophic dwarfs in Mörch's series have had 10 affected and 17 normal children—sufficiently close to the expected ratio. The second test is that sporadic cases if due to mutation must not have any greater proportion of more distant relatives affected than ordinary normal people selected at random. If they have, this would point to occasional manifestation and the skipping of generations rather than to mutation. Again the Danish material passes the test; Mörch could not find a single affected individual among the more distant relatives of any sporadic case. There was one curious finding: the average age of the parents of sporadically occurring dwarfs was significantly higher than in the population generally. Mörch attributes this to a rise in mutation rate with age. This may well be so, but until similar findings are reported in other conditions the association with parental age should probably be regarded as somewhat weakening the evidence. Nevertheless this fine study makes the inheritance of achondroplasia sufficiently clear to enable the clinician to give unequivocal advice to patients. There is a 50% chance that any child of an achondroplastic dwarf, man or woman with or without a family history of the condition, will be similarly affected. A normal couple who have had an achondroplastic child can be assured that the chance that a subsequent child will be affected is no greater than the 1 in 10,000 or so of any random normal pregnancy.

[1] *British Medical Journal*, 1948, 1, 651.
[2] Ibid., 1948, 1, 697.
[3] *Opera ex Domo Biologiae Hereditariae Humanae Universitatis Hafniensis*, Vol. 3. Copenhagen, Ejnar Munksgaard, 1941.

MODE OF ACTION OF INSULIN

Some metabolic processes are precisely adjusted by the action of hormones, and in a recent review of the mechanism of action of insulin Professor F. G. Young has shown that the two key processes are the enhancement of the activity of liver phosphorylase and of hexokinase. The former of these enzymes catalyses the reaction in which glucose-1-phosphate is converted to hepatic glycogen. This reaction appears to take place when the blood sugar is raised, and, provided the blood sugar is not allowed to fall below the "liver threshold" of 90–110 mg. per 100 ml., insulin promotes the formation of hepatic glycogen. Glycogen then becomes available in the liver for the supply of glucose to the heart and brain or of glycogen to the muscles when required. The action of insulin on the hexokinase system is perhaps even more important. Preliminary phosphorylation to glucose-6-phosphate is necessary before glucose can enter the metabolic cycle. The reaction requires the addition of free energy and is catalysed by hexokinase. Cori and his colleagues[2] have shown that *in vitro* activity of hexokinase is inhibited by certain unstable pituitary extracts or extracts of the adrenal cortex. This influence is counteracted by insulin. Furthermore, insulin does not increase the activity of hexokinase derived from normal animals, though it does increase that of hexokinase derived from diabetic animals. The balancing mechanism is therefore a delicate one. The extreme "sensitivity" to insulin of the patient with hypopituitarism or of the diabetic with Addison's disease is not explained by this effect. Young suggests that in the case of the hypophysectomized animal the readily produced insulin hypoglycaemia may be due to enhancement of the phosphorylase mechanism.

Some authorities do not consider that insulin stimulates the oxidation of glucose directly. Nevertheless it is

[1] *Sci. Progr.*, 1948, **38**, 13.
[2] *J. biol. Chem.*, 1947, **168**, 583.
[3] *J. Amer. med. Ass.*, 1946, **132**, 373.

probable that the hexokinase mechanism facilitates oxidation indirectly, the glucose-6-phosphate undergoing conversion to pyruvic acid, which is oxidized in the tricarboxylic acid cycle of Krebs. Another important effect indirectly produced by insulin is the abolition of ketosis. Recent evidence suggests that fatty acids are broken down by oxidative fission into two-carbon-atom fragments, which may undergo oxidation in the liver or, failing this, condensation to the ketone, acetoacetic acid. To a lesser extent this ketone can be produced by oxidation of four-carbon fragments of the fatty acid, and either the two-carbon fragments or acetoacetic acid can be incorporated in the tricarboxylic acid cycle and oxidized. The initiation of this cycle depends on the utilization of carbohydrate. Failure to bring about oxidation of fat derivatives in this way and the absence of carbohydrate utilization in the muscles are necessarily followed by increased combustion of ketone bodies. This combustion in the muscles can apparently take place only in the presence of large quantities of blood ketone, and this accounts for the severe ketosis. It has long been suspected that insulin catalyses the conversion of glucose to fat, and Stetten[3] has proved this by the use of the isotope technique. Young shows clearly that this is quite in harmony with the well-known rise in the respiratory quotient that occurs after the administration of insulin to a diabetic.

OSTEOID OSTEOMA

Osteoid osteoma was first described as a clinical entity by Jaffe[1] in 1935; previously lesions which would now be recognized as osteoid osteoma had been reported under other names. The disease attacks males more frequently than females, the ratio being greater than two to one. It occurs mainly in adolescents and young adults, though the youngest patient on record was 3 and the oldest 51. The bones chiefly affected are the tibia, femur, astragalus, humerus, and vertebrae. The commonest symptom is pain, which is vague and intermittent at first, but later increases in severity and is often present at night. Precisely localized tenderness and thickening are the most obvious physical findings, and occasionally an effusion may occur in the adjacent joint. When the spine is affected localized back pain, increased muscle spasm, and secondary scoliosis occur. There are no blood changes, and the patients are afebrile. Radiography reveals the lesion as a rounded area of reduced density surrounded by sclerotic bone, but the bone may be so sclerotic than the central area cannot be seen on the radiograph. Excision of the lesion produces permanent and complete relief. The nidus, when exposed by operation, consists of a brownish or greyish mass of vascular connective tissue. Microscopic examination of this material shows cellular fibrous tissue containing multinucleated giant cells, associated with many irregular trabeculae of osteoid tissue. This latter tissue is irregularly calcified. Reporting thirty cases of osteoid osteoma Sherman[2] makes the point that it is likely that the lesion heals spontaneously, because in patients over the age of 30 the disease has been reported on only eight occasions.

The aetiology of the condition is still in doubt. The argument for trauma is not convincing, since few patients give a definite history of injury. Brown and Ghormley,[3] in fact, deny the existence of osteoid osteoma, regarding it as "chronic inflammatory tissue." Brailsford[4] in 1942 presented several cases with radiographs which were similar to those of osteoid osteoma. *Staphylococcus albus* was cultured from three of these cases, and he regarded the lesions as chronic subperiosteal abscesses. Against the infection theory it is argued that these patients have no fever, leucocytosis, or other systemic manifestation, and that the organisms which are grown from the lesions have in the main been contaminants; in five cases guinea-pigs were inoculated, with negative results. Wassermann, Kahn, and tuberculin tests have all proved to be negative. Jaffe considers the lesion to be a benign neoplasm, and the constancy of the pathological findings supports this view. Tissue typical of an osteoid osteoma is not encountered in proved abscesses. The condition is not related to any activity of the haematopoietic tissue. Osteoid osteomas are small; they rarely exceed one centimetre in diameter. There is no record of their occurrence in the scapula, clavicle, or cranium, and only once has an osteoid osteoma been reported in an epiphysis. The nature of this condition is still obscure, and no dogmatic statement can be made about its origin.

[1] *Arch. Surg.*, 1935, **31**, 709.
[2] *J. Bone Jt Surg.*, 1947, **29**, 918.
[3] *Surgery*, 1943, **14**, 541.
[4] *Brit. J. R diol.*, 1942, **15**, 313.

ACADEMIC SALARIES

New salary scales for professors, lecturers, and readers in medical schools and in dental schools were the subject of a written reply by Sir Stafford Cripps to questions which were put to him on Feb. 28 by Sir Ernest Graham-Little and Mr. Somerville Hastings. Both the University Grants Committee and the Committee of Vice-Chancellors and Principals have had under consideration the effect of the Spens Report on the Remuneration of Consultants and Specialists on the salaries of medical and dental staffs at the universities. Both committees have been seriously concerned about the effect on staffing and recruitment of the disparity between the present academic scales and the rates of remuneration proposed for consultants and specialists by the Spens Committee. The proposals they put forward have been accepted by the Chancellor of the Exchequer, and the University Grants Committee has therefore written to the Vice-Chancellors indicating the revised general limits of salaries in the medical and dental schools for which supplementary grants will be made in the current quinquennium. Determination of the salaries of individual members of the staff will continue to be entirely within the discretion of the universities, but provision will be made in the estimate for the financial year 1949–50 to allow of supplementary grants being made for the purpose of readjusting salaries within the proposed limits.

The revised salaries for full-time clinical posts, which are to be paid from a date not earlier than April of this year, are: professors, £2,250 to £2,750 a year; lecturers, £600 to maxima of £1,500 to £2,000 a year, or in the case of lecturers holding posts of special responsibility, such as a headship of independent departments, £2,500 a year; salaries for readers will be within the range of the maxima for lecturers. For full-time preclinical posts the revised salaries will be paid from a date not earlier than Oct. 1 of this year and will be: professors, £2,000 to £2,500 a year; lecturers, rising from £600 to maxima ranging from £1,200 to £1,800 a year; readers, salaries within the range of the maxima for lecturers. It will be for the universities to decide in borderline cases whether particular posts should be treated as clinical or preclinical; for example, the University Grants Committee would regard it as reasonable if certain posts in the departments of pathology and bacteriology were treated as clinical posts.

Professor H. P. Himsworth, M.D., F.R.C.P., will deliver the Oliver-Sharpey Lectures before the Royal College of Physicians of London (Pall Mall East, S.W.) on Tuesday and Thursday, March 15 and 17, at 5 p.m. His subject is "The Syndrome of Diabetes Mellitus."

THE Rh FACTOR

BY

ALEXANDER S. WIENER, M.D., F.A.C.P.

I was very interested in the review (*Journal*, Oct. 2, 1948, p. 650) of the excellent monograph *The Rh Blood Groups and their Clinical Effects*, by P. L. Mollison, A. E. Mourant, and R. R. Race, as I had just completed reading that publication myself. This fine outline of the present status of the rhesus blood factors is clearly written and gives much useful information. However, it contains a number of errors of omission and commission, and the purpose of this paper is to point them out in view of any further editions that may be planned.

In Chapter I, which deals with the heredity of the Rh–Hr blood types, the discussion is unfortunately limited practically exclusively to the linkage theory sponsored by Fisher and Race, while the theory of multiple alleles sponsored by me is hardly mentioned at all. When discussing the linkage theory, moreover, the writers fail to point out that this theory, which is usually ascribed to Fisher, was actually first discussed by me in 1942. I found that the distribution of the Rh types differed markedly from the equilibrium values to be expected if heredity is determined by distinct pairs of Rh–Hr genes, either linked or independent, rather than by a simple series of allelic genes. (These calculations have recently been confirmed and extended by Rife.) Therefore I discarded the theory of linked genes in favour of the theory of multiple alleles. The monograph, too, fails to mention that the theory of multiple alleles is supported by the studies of myself and my collaborators, as well as those of Chown and Race himself, on families comprising more than 2,000 children. The theory is also supported by statistical studies on the distribution of the Rh types in the general population, as calculated with the aid of the following formulae (not including the rare genes r^y and R^z) published by me in 1944:

$$r = \sqrt{\text{rh}} \quad (1)$$

$$r' = \sqrt{\text{rh}'+\text{rh}}-\sqrt{\text{rh}} \quad (2)$$

$$r'' = \sqrt{\text{rh}''+\text{rh}}-\sqrt{\text{rh}} \quad (3)$$

$$R^0 = \sqrt{\text{Rh}_0+\text{rh}}-\sqrt{\text{rh}} \quad (4)$$

$$R^1 = \sqrt{\text{Rh}_1+\text{rh}'+\text{Rh}_0+\text{rh}}-\sqrt{\text{Rh}_0+\text{rh}}-\sqrt{\text{rh}'+\text{rh}}+\sqrt{\text{rh}} \quad (5)$$

$$R^2 = \sqrt{\text{Rh}_2+\text{rh}''+\text{Rh}_0+\text{rh}}-\sqrt{\text{Rh}_0+\text{rh}}-\sqrt{\text{rh}''+\text{rh}}+\sqrt{\text{rh}} \quad (6)$$

The theory of multiple alleles receives support from the fact that the sum of the gene frequencies calculated with the aid of these formulae closely approximates to 100%.

One of the main objections to the linkage theory is its use as a basis for an elaborate and unnecessary duplicate system of nomenclature for the Rh–Hr types. Thus the linkage theory sponsored by Fisher and Race, for which there is no substantial evidence, in contrast to the theory of multiple alleles, not only is not original with these workers but has caused them to introduce a cumbersome system of notations which has served only to confuse the subject. For example, the following formulae for "chromosome" frequencies are given by Race in the monograph, being attributed to Fisher as of 1946:

$$\text{cde} = \sqrt{(-+--)} \quad (7)$$

$$\text{Cde} = \sqrt{(-+--)+(++--)+(+---)}-\sqrt{(-+---)} \quad (8)$$

$$\text{cdE} = \sqrt{(-+--)+(-+-+)}-\sqrt{(-+--)} \quad (9)$$

These formulae resemble closely formulae (1) to (6) given above, though expressed in less comprehensible hieroglyphics. Another disadvantage of this nomenclature, which Race himself admits on page 10, is that the C–D–E notations are "somewhat cumbersome to use in speech." The advantages of the simple name "type rh" for triple Rh-negative blood as compared with the designations used by Race—namely, "group $-+--$" and sometimes "group $---+$"—are too patent to require discussion. In Race's notations it is absolutely essential to specify the arrangements of the antisera, since four symbols can be arranged in as many as 24 different ways. Therefore Race has to resort to the use of the "shorthand" symbols R_1, R_2, r, etc., which are merely an adaptation of my original Rh–Hr notations. Thus those who insist on using the C–D–E notations are compelled to be familiar with two nomenclatures, while those who use the Rh–Hr notations get along very well with one. Moreover, in Table III Race himself finds that the Fisher–Race method of guessing genotypes entails errors as large as 49%, while I have shown that my own notations for the Rh–Hr phenotypes and genotypes avoid any error.

The monograph quite properly gives full credit to Levine and his collaborators for their pioneer work in demonstrating the role of iso-immunization to the Rh factor in the pathogenesis of erythroblastosis. It should have been mentioned, however, that the phenomenon of iso-immunization in pregnancy had been demonstrated previously by Jonsson in 1936 in the case of the A and B factors. Moreover, the concept of iso-immunization in relation to the pathogenesis of erythroblastosis was first advanced by Darrow in 1938, but this worker thought that foetal haemoglobin was the antigen responsible. Levine correctly demonstrated that Rh was the antigen usually at fault, but incorrectly ascribed the effect to Rh agglutinins. Following the independent discovery by myself and Race of the Rh blocking antibody, I demonstrated that blocking antibodies readily traverse the placental barrier, while agglutinins are effectively held back by the intact placenta, so that the blocking antibodies, or as they are also known the glutinins, are the real culprits in producing the disease, not the agglutinins.

When discussing exchange transfusion the excellent umbilical-catheter method of Diamond is described in detail, but the saphenous-vein–radial-artery method of Wiener and Wexler is completely ignored even though this was proposed earlier and has been widely used with great success. The umbilical-catheter method has a popular attraction because of its seeming simplicity. However, there have been technical failures with this method even in the hands of experts, who then had to resort to the radial-artery method, which can always be used regardless of the age of the baby. Moreover, while there has been no operative mortality ascribable to the radial-artery technique, there have been occasional deaths following the blind umbilical-catheter method, dué not only to air embolism but also to thrombosis and even haemorrhage into the abdominal cavity. In the monograph no mention is made of the fact that, regardless of the method used, one must take care to avoid the possibility of serious shock or even death from hypocalcaemia which may be induced by the relatively rapid introduction of large amounts of citrate, especially when massive exchange transfusions are done. This complication can easily be avoided by repeated careful injection of 10% calcium gluconate in doses of 1 ml. each time 100 ml. of blood is administered to the infant.

In the section dealing with the difference between properties of behaviour of univalent and of bivalent antibodies it is rather surprising to find no mention made of my concepts of agglutination and conglutination. Moreover, there is no reference to my work proving that univalent antibodies pass through the placenta easily while bivalent antibodies do not—an observation of considerable importance not only for the pathogenesis of erythroblastosis but also for immunology in general. The term "albumin agglutinin" does not seem satisfactory, because it is based on a purely artificial though ingenious *in vitro* test with no counterpart *in vivo*. If the term "albumin agglutinin" is to be considered acceptable then why not "acacia agglutinin" or "plasma agglutinin" or "anti-human globulin agglutinin"? The terms "glutinin" and "univalent antibody" are free from such objections. As I have demonstrated, the univalent antibodies, after passing through the placenta, coat the foetal red cells, and clumping occurs only in the presence of a third component, conglutinin, found in normal plasma. Conglutinin has been shown to be a colloidal aggregate of plasma protein which is related to or identical with X protein, and is analogous in many respects to complement. As shown by me and confirmed by Witebsky, the plasma of the foetus *in utero* is deficient in

conglutinin, which, however, matures rather rapidly after birth, thus accounting for the frequently delayed onset of signs and symptoms of the disease. Indeed, the main purpose of exchange transfusion is to remove the baby's coated red cells before they can clump by intravascular conglutination in order to avoid irreversible organic damage which could result from blockage of the circulation. Mollison's statement on page 34 that icterus gravis is probably due indirectly to the primary damage to the baby's red cells is a partial admission of the correctness of these views, and at least does not subscribe to the theory held by many workers that the antibodies act directly on the tissue cells, which were supposed to possess Rh antigen.

With regard to the question of nomenclature it is especially important to review the evidence available at once, because the recent U.S. Government ruling that the C–D–E notations must be included in parentheses after the standard Rh–Hr notations when labelling antisera has forcibly brought the newer notations to the attention of technicians who had been perfectly content with the original, simpler notations. If the C–D–E protagonists have any real evidence in support of the linkage theory now is the time to present it if they sincerely believe that they are on the right side.

In this connexion the rather extensively cited single exception to the multiple-allele theory found by Glass is merely an illegitimate child, and, at any rate, observations on a single case can hardly affect conclusions based on the far more extensive studies carried out by me and my collaborators. If bona-fide exceptions are ever found to the multiple-allele theory, where the possibility of technical errors and illegitimacy are ruled out, then one must consider the more plausible possibility of mutation rather than invoke the highly improbable concept of crossing over between tightly linked genes; and no doubt there must be still other possibilities of which we are not aware in the present state of scientific knowledge. While, after Levine's discovery of the first Hr factor, it should have been possible to predict the existence of three Hr factors on the basis of the theory of multiple allelic genes as well as the theory of linked gene triplets, Fisher deserves great credit for his keen insight, which led him to predict the existence of hr″ and Hr_0 several years before they were finally found.

In conclusion, the various objections which have been raised by C–D–E workers against the original Rh–Hr notations have now all been answered without difficulty. It is now time for the C–D–E protagonists to answer the criticisms of their nomenclature or to abandon their stubborn position for the good of the subject.

ANALGESIA IN CHILDBIRTH

PRIVATE MEMBER'S BILL

Mr. Peter Thorneycroft, M.P., who will introduce into the House of Commons on March 4 a private member's Bill intended to ensure that all midwives are trained in the latest methods of analgesia and are provided with the necessary apparatus for giving it, described the provisions of the Bill at a press conference organized by the National Birthday Trust Fund.

The Bill, which consists of nine clauses, provides that, after three years from its passing, a woman who has not received instruction in accordance with rules framed by the Central Midwives Board in the administration of analgesics to women in childbirth shall not be allowed to practise as a midwife; further, that a woman who may have received such instruction but has not also received such further instruction as may be prescribed by rules framed from time to time by the Board shall not be allowed to practise.

It is declared to be the duty of every local health authority to secure the provision of means to enable midwives so instructed and employed under the National Health Service Act (Part III, Section 23) to administer analgesics to women who desire them. The local health authority is also to ensure that sufficient approved apparatus, facilities for transport, and supplies of drugs are provided and are at all times available for midwives. Those having control or management of a hospital or maternity home are also required to provide such apparatus and drugs. The right of the midwife to administer analgesics is stated in Clause 5, which runs:

"Any certified midwife who has received such instruction in the administration of analgesics to women in childbirth as may from time to time be prescribed by rules framed by the Board shall be entitled to administer, in accordance with any rules framed and any method approved from time to time by the Board, an analgesic to any woman who desires it during childbirth."

It was stated at the press conference that present arrangements for giving this relief varied very greatly from one area to another. Ample provision existed in some places, while in others arrangements were almost non-existent. It was felt that the Bill raised no issue of party politics, and was one in which all women would be interested. The National Birthday Trust Fund, which had worked for twenty-one years for the right of the mother to have relief if she desired it, and if there was no medical reason why she should not receive it, was strongly supporting the Bill, and believed that if it was passed into law it would not be long before all women, whether confined in hospital or at home, would be able to ask for and obtain analgesia.

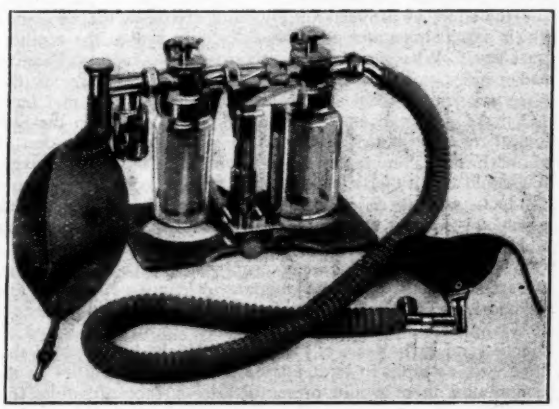
Lady Rhys-Williams stated that a survey made recently by the Trust Fund revealed that analgesia was given to only 52% of women confined in hospital. Of the 17,000 practising midwives, 7,000 were qualified to give gas-and-air analgesia, and the Bill looked forward to advances in anaesthesia and provided for refresher courses for midwives. Lady Rhys-Williams also said that "trilene" might shortly be approved for use by midwives.

The Bill contains penal clauses whereby midwives giving analgesia without the prescribed instruction will be liable on summary conviction to a penalty not exceeding £10, and to a further penalty of the same amount for each day on which the offence continues after conviction. There are similar penalties for the managers of hospitals or nursing-homes who fail to make the required provision.

Preparations and Appliances

A SIMPLE PORTABLE ANAESTHETIC APPARATUS

Wing Commander R. L. SOPER, senior specialist in anaesthetics, R.A.F., writes: There is a real need for a simple portable apparatus designed primarily for the non-specialist anaesthetist. The one here illustrated operates normally as a gas-and-oxygen apparatus, to which ether or other vapours can be added by means of two Thornton vaporizers. If desired, by means of an air-inlet valve it will act as a simple draw-over



apparatus for trilene–air or ether–air (see the description by Dr. Marrett, *Journal*, 1942, **1**, 643). Rebreathing is readily obtained with either technique. The weight of the complete unit is just over 12 lb.

I would like to thank Mr. R. W. Avery for his assistance with the original design, and Mr. E. P. Childerhouse, of Medical and Industrial Equipment, Ltd. (the makers), for help in producing the apparatus.

Reports of Societies

PREVENTIVE PSYCHIATRY

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on Feb. 7, under the chairmanship of Sir ALLEN DALEY, "Preventive Psychiatry" was discussed.

Dr. W. S. MACLAY, Senior Medical Commissioner of the Board of Control, in a brief introduction mentioned one or two projects which were developing. One was the World Federation for Mental Health, which came into existence following the International Congress held in London last August. Another development was the out-patient clinics, which had multiplied since the Mental Treatment Act, 1930, and now numbered 250 for adults and 120 for child guidance, but many more were needed. In 1941 the first disablement rehabilitation officers were appointed. The Ministry of Labour had recognized the value of a liaison between the organization for getting back into industry persons suffering from psychiatric disability and the mental hospitals, out-patient clinics, and social centres which also existed to help them. Dr. Maclay also mentioned the provisions of the new Criminal Justice Act, especially from the point of view of the prevention of delinquency, and of the National Health Service Act.

Dr. A. TORRIE said that the prevention of psychiatric illness in the Army should start with the recruiting board. Now that the Pulheems system had been introduced he hoped there would be far fewer breakdowns, but the system must be applied with wisdom and discretion. (The Pulheems system was the subject of the opening article in the *Journal* of Jan. 15, p. 83.)

In the early stages of life in the Army instruction should be given in the general principles of mental health. Good leadership and good relations were essential to preventive psychiatry, and the influence which could be exercised by the padre should not be overlooked. The same was true of the industrial community. Here he considered that the family doctor was the key man in prevention, but the help of the clergy, social workers, and of all who were in positions of supervision, including the junior foreman, was to be desired.

Child Guidance

Dr. EMMANUEL MILLER said that child guidance was no new thing. The claim of psycho-analysis was primarily that disturbances in childhood producing neurosis, psychosis, and behaviour disorders lay somewhere in the child-parent relationship. Dr. Miller instanced the question of suckling and its periodicity, and the effect of artificial feeding, and discussed the assistance which psychiatrists and psychologists could give at the mother-craft level. What could the psychiatrist do to help prospective and nursing mothers to understand the significance of the maternal role? Could the psychiatrist come in at that level and make a woman understand the difference between the biological function of maternity and the psychological function of motherliness? Almost any woman could be a mother, relatively few could be motherly. Again, with regard to sex interest and conduct, was there a technique of sex instruction which psychiatrists ought to formulate and hand over to educationists and parents?

What would be the effect of prophylactic psychiatry directed towards the child upon the ultimate incidence of neurosis and psychosis and the like in the adult community? On the theory that all such disorders were produced during the formative months and early years of child life it might be supposed that if it were possible to treat all the childhood difficulties in the community there would presently arise a race of adults free from these disturbances. He could not believe that that would be true. With every phase of mental growth and development new factors entered into the life of the individual. There were new factors at puberty, for example, and also in adult life. No foolproof protection could be obtained by treating children alone. Child psychiatry had the power to produce techniques and methods of handling which would materially reduce adult disturbances, but it would be rash at this stage to say that it had the power to filter them off completely.

Mental Stress in the Future

Dr. C. P. BLACKER asked the audience to consider what kind of mental stress was likely to develop in the future. He discerned two recent trends. A Population Investigation report which would be published shortly would call attention to diminished fertility; increasing use of birth control, especially the use of appliance methods; increasing awareness of the difference between planned and unplanned pregnancies and between wanted and unwanted children; an increasing tendency for couples to plan the size of their families at marriage; and the diminishing size of planned families. This meant a diminution in the numbers of unwanted children. If there was a general movement in favour of small planned families the problem of the future would not be the neglected child but the spoilt child. Parallel with this, the new educational service promised secondary education for all children, which would effect equalization of educational opportunities. Most parents would hope that their sons would be enabled to practise in the professions, and questions would arise about how entry into the professions should be regulated. There would be disappointment for the great majority of boys and girls who, though educated to the same level as the successful ones, would not be eligible for the coveted jobs.

Thus a new mental health problem would arise. On the one hand there would be the wanted child, the object of great solicitude, and on the other there would be a system whereby the aspirations kindled in such children would be thwarted. That was the new problem that would trouble the next generation of psychiatrists. It would mean new stresses, in some ways more troublesome and more provocative of neurosis than the old. The door would be opened much more widely to a self-regarding attitude in which jealousy would take a larger place than it had done in the more happy-go-lucky forms of society to which most of us had been accustomed.

GRANULOMATA OF THE LARGE INTESTINE

A meeting of the Section of Proctology of the Royal Society of Medicine was held on Feb. 9, Mr. C. NAUNTON MORGAN presiding, for a discussion on the subject of granulomata of the large intestine.

Actinomycosis of Rectum and Colon

Mr. ZACHARY COPE said that actinomycosis involving the colon and rectum was a rare condition. In nine cases out of ten it was the anaerobic organism which was concerned, although in many textbooks there was still confusion on this point. He had been able to collect only six cases of actinomycosis of the colon, and in five of these it was excised under the impression that the actual pathological lesion was a carcinoma. Actinomycosis of the rectum, of which he had collected accounts of 40 cases, brought many diagnostic puzzles to the surgeon. The cases could be divided into primary and secondary, "secondary" meaning the invasion of the rectum from above. The diagnosis of primary rectal actinomycosis could be made with certainty only by detection of the fungus in the discharge. The condition might easily simulate malignancy, tuberculosis, or any other chronic inflammation of the rectum. Prognosis had been unfavourable, and although the patient might seem to be cured it was necessary to watch for a year or two before cure could be pronounced with certainty; recurrences sometimes appeared after a long interval.

Secondary actinomycosis usually spread down from the appendix, sometimes from the stomach. A few cases had resulted from perforation of a gastric ulcer, which allowed the organism to escape into the peritoneal cavity and so into the rectum. Symptoms were not characteristic. There might be pus, mucopus, or mucus in the stools, diarrhoea and constipation, suppuration, obstruction of the large bowel, abdominal distension, piles, or fistulae. Sigmoidoscopy was not of much use except in rare cases. He believed that there must be more of these cases than was commonly supposed. In treating patients suffering from actinomycosis in the pelvis up to half a million units of penicillin a day, carried on for many weeks, should be given. It was important to give large doses and to keep up

the administration week after week until the patient was free from symptoms.

Crohn's Disease

Professor G. HADFIELD said that there was still complete ignorance about the cause of Crohn's disease, and possibly for that reason its treatment remained uncertain and unsatisfactory. So far as he knew there was no pathological evidence which justified any conclusion regarding its exact aetiology. In an earlier study he and others concluded that during the initial period the intestinal lesion was able completely to repair itself, and that the later manifestations of the disease were secondary and possibly non-specific complications. That view was founded largely on the pathological evidence afforded by the relatively early cases.

The speaker showed lantern slides of a number of specimens, including the irreparable stage of the "cobble-stone ileum." He also exhibited a diagram illustrating the probable origin and progress of this disease, beginning with a submucous lymphadenoma and then, after the local oedema had reached its maximum, with progressive ulceration and secondary infection increasingly dominating the picture and going on to obstruction and fistulae. He quoted the results, published in 1945, of Garlock and Crohn:

	Cases	Post-operative Deaths	Recurrences
Ileo-colostomy, transection and exclusion of lesion	65	0%	13·8%
Primary resection	55	16%	19·5%
Ileo-colostomy, exclusion of lesion followed by resection	25	12%	36·3%

In the 25 cases in the third group it was reported that the lesion and resected loop almost invariably showed advanced healing and little or no inflammation. Unless there was extensive ulceration the initial bowel lesion would repair itself if placed in conditions of complete physiological rest.

Amoebic Granuloma

Mr. R. W. NEVIN said that the importance of intestinal amoebiasis to the surgeon was that the condition might simulate almost any abdominal lesion, and if an operation was carried out in unrecognized and unsuspected cases the mortality was very high. It had been stated that this condition was one for surgical diagnosis and medical treatment. Granulomata were most commonly found either in the caecal or the recto-sigmoid region. The condition was very easily confused with carcinoma. Mistakes were frequently made in diagnosis unless this condition was kept in mind. *Entamoeba histolytica* might be demonstrated in the stools or a typical lesion might be shown. On treatment with emetine the granulomata usually disappeared, leaving little scar tissue. The ultimate difficulty in diagnosis lay in the fact that a granuloma and a carcinoma might exist together in the same patient at the same time. The speaker cited some of his personal cases. Among them was a woman, aged 46, who had never been out of the country. She presented symptoms typical of carcinoma of the rectum, in the upper third of which, on examination, a firm fibrous mass was felt. Proctoscopy and sigmoidoscopy revealed no ulcers or abnormalities other than the palpable lesion. A specimen was taken and was returned as granulation tissue. Stools were searched for amoeba, but none were found. After giving emetine, however, amoeba did appear, and under further treatment the mass cleared up completely.

Individuals with latent or chronic amoebiasis would usually have a secondary anaemia and appear to be in chronic ill-health. It was generally held that a majority of persons suffering from amoebiasis did not present dysenteric symptoms. In about one-third of all cases there were demonstrable lesions which could be seen with the sigmoidoscope.

If all other methods of diagnosis failed, the therapeutic test should be applied. A course of emetine should be given and its effect observed. This might give absolute proof by the production of amoebae in the stools or the relief of symptoms and signs. Treatment was by means of the appropriate anti-amoebic drugs. If this failed in a suspected case, resection might be undertaken and further medical treatment given.

ASSOCIATION OF CLINICAL PATHOLOGISTS

SCIENTIFIC MEETING

The 41st scientific meeting of the Association of Clinical Pathologists was held at Westminster Hospital on Jan. 27, 28, and 29, with Professor R. J. V. PULVERTAFT in the chair.

Dr. F. B. SMITH, in his presidential address, discussed what appeared to be a new syndrome of atypical (septicaemic) tuberculosis with agranulocytosis. He described four adult cases with pyrexia, purpura, and agranulocytosis. Although there was heavy blood-borne bacterial infection as evidenced by dense colonies of mycobacteria in the liver, spleen, and the few lymph nodes found at necropsy, yet there was no histological change typical of tuberculosis and no clear primary focus.

Dr. C. W. TAYLOR described the various virilizing tumours of the ovary and said they fell into two groups: (1) arrhenoblastoma with structures of testicular type (differentiated or embryonic); and (2) lipoid-cell tumours of the so-called adrenal-like type. He showed how removal of the tumour resulted in regression of masculinization and a return to a normal menstrual cycle in one month. In two cases full-term pregnancy subsequently occurred followed by lactation. He considered it unwise to accept the virilizing lipoid-cell tumour as of heterotopic adrenal origin. Dr. H. R. MAVOR reviewed the series of changes occurring in fat embolism of the brain with large numbers of intravascular fat plugs.

Gastro-enteritis

On Friday Dr. C. GILES described an investigation into the coliform flora in gastro-enteritis. He said that the a type of *Bact. coli* was isolated from 94.7% of the faeces of 207 cases of gastro-enteritis, whereas it was only found in 1.8% of 721 controls. Antibody titres were raised in 60% of 41 cases and in only 1.2% of controls. In 55 necropsies the organism was found almost constantly in the gastro-intestinal tract and was isolated occasionally from the mesenteric lymph nodes, the liver, and the spleen. Feeding experiments were unsuccessful except with 10 newborn guinea-pigs; five of these developed diarrhoea and three died, with findings at necropsy similar to those in infants dying from gastro-enteritis.

Dr. JOAN TAYLOR, who had also found such strains (called by her D.433) in sporadic outbreaks of gastro-enteritis, was still sceptical about their pathogenicity.

Dr. GEORGINA M. BONSER had observed in collaboration with Professor M. J. Stewart a series of 57 melanin-forming epidermal tumours. These tumours were classified histologically as squamous papillomas (21), benign calcified epitheliomas (2), and basal-cell (28) and squamous (6) cancers. They were to be distinguished from the true benign and malignant melanomata, which were accepted as being of neurogenic origin. They tended to appear in age groups over 50 years, and to occur more commonly on the face and neck than on the trunk and extremities. There was usually a long history, but they did not metastasize. These tumours were not more malignant than their non-melanin-forming counterparts and responded to the same type of treatment.

Dr. J. HOOGSTRATEN had compared the *in vitro* growth of leukaemic cells in the serum of a healthy person and in the serum of the leukaemic patient. He said that immature leukaemic cells, although incapable of differentiation *in vivo*, would differentiate or mature *in vitro* when grown in normal human or animal plasma. Fresh blood or plasma transfusions might produce temporary haematological and clinical improvement and even diminution in the size of the enlarged lymph nodes and spleen; reconstituted dried plasma did not have this effect. Leukaemic cells were therefore cultured experimentally, and he showed that these immature myeloblasts and myelocytes were capable of a degree of differentiation *in vitro* resembling that of normal leukopoietic cells, but with the same rate of proliferation and extent of differentiation whether grown in leukaemic or in normal serum. Normal plasma therefore did not exert its influence directly on leukaemic cells but possibly through an intermediary mechanism or another tissue.

Dr. M. C. G. ISRAELS put forward a strong plea for agreement on the nomenclature of blood and marrow cells. There

was already a measure of agreement in terminology for the white cell series, but the position of the red cell series had been further complicated by the proposals of the American committee, which wished to include the hybrid terms "rubriblast," "rubricyte," "metarubricyte," etc.; the megaloblast was to be called "pernicious anaemia type rubricyte."

It was generally agreed by subsequent speakers that the terms now in use in this country were acceptable and that what was really required to avoid confusion was a standardized description of the cells which were called proerythroblasts, megaloblasts, and normoblasts. It was announced that the association had set up a committee on haematology.

Anaesthetic Deaths

A formal discussion on anaesthetic deaths was opened by Dr. KEITH SIMPSON, who spoke of the group of people who had a slender hold on life and were killed by trivial accidents and stresses. Dr. R. D. TEARE discussed curare and myanesin in this connexion, and Dr. F. E. CAMPS described the pathology of deaths from anoxia. Dr. G. S. W. ORGANE gave the anaesthetist's point of view and suggested that the pathologist was not the best person to investigate anaesthetic deaths, as there was little gross change. He pleaded for an investigation by anaesthetists, who were in a better position to ascertain what procedures had been adopted and whether any fault in technique could be found, so that the administrator could be guided, rather than reprimanded by a coroner. Dr. C. D. COGSWELL, coroner for the county of Middlesex, and himself a doctor and anaesthetist, said that the coroner was not apportioning blame but merely holding an inquiry into the relevant events leading up to an anaesthetic death. Others who took part in the discussion were Professor R. R. MACINTOSH, Dr. I. W. MAGILL, and Dr. W. R. HEDDY.

On Saturday, with Dr. C. J. C. BRITTON in the chair, Dr. J. MURRAY and Drs. E. N. ALLOTT and C. A. HOLMAN described their methods of investigating foetal haemolytic disease with special reference to prevention and treatment. In the discussion which followed, Sir LEONARD PARSONS congratulated the speakers on their results. He showed how the mortality had dropped in the best hands from 50% to about 10%. Dr. W. WEINER reviewed some cases of leukaemia in which he had used replacement transfusion. He had produced some clinical improvement, which was, however, only temporary. Subsequent speakers doubted the wisdom of transfusion in leukaemia, especially in children.

With Professor N. F. MACLAGAN in the chair the final session was opened by Dr. M. HYNES, who described his experimental study of the normal iron reserves in man. This was done by bleeding a man until his rate of regeneration of haemoglobin reached a constant level. The daily absorption of iron from the food in excess of that normally required to replace effete red cells was calculated by the different rates of regeneration of haemoglobin when 6.5 ml. and 20 ml. of blood, respectively, were withdrawn daily after exhaustion of the iron reserves.

Professor E. C. DODDS, after discussing the nomenclature used in steroid chemistry, went on to give an account of the modern methods of study of the urinary steroids. He mentioned the claims of Dobriner and his colleagues that many diseases were associated with a characteristic steroid pattern of excretion. Reference was also made to the claim that the presence of a particular steroid was associated with malignant disease. Professor Dodds then listed the steroids isolated from the urine and said that the main use of such analyses should be to differentiate between virilism of adrenal and of other origin.

SPONTANEOUS SUBPERITONEAL HAEMORRHAGE

The president, Mr. S. B. HERD, took the chair at the meeting of the North of England Obstetrical and Gynaecological Society held at the Liverpool Medical Institution on Feb. 18, when Dr. H. ROBERTS described a case of spontaneous subperitoneal haemorrhage. The patient, aged 42 and in the thirty-second week of her tenth pregnancy, while sitting quietly in a cinema was seized with severe pain in the right iliac fossa. On admission into hospital she was shocked, and the uterus was displaced to the left by a mass at the right side which, on exploration, was found to be a haematoma of the broad ligament. A large-bore rubber drainage tube was inserted extraperitoneally into the haematoma. The patient had a stormy convalescence, during which signs of toxaemia of pregnancy became evident and a stillborn macerated foetus was expelled on the second day. Mr. S. BENDER described a case of appendicitis during pregnancy in which the foetus survived a series of major complications, and Dr. T. REDMAN read a short paper entitled "Descent of the Foetal Head in Late Pregnancy and Labour." Mr. P. MALPAS discussed the limited use of vaginal packing in the treatment of uterine haemorrhage following caesarean section for placenta praevia.

TREATING THE AGED SICK AT HOME

The Medical Society for the Care of the Elderly met at St. Helier Hospital, Carshalton, on Jan. 25. Dr. E. B. BROOKE, medical superintendent of the hospital, read a paper on the domiciliary treatment of the aged sick.

The number of requests for admission to hospital, Dr. Brooke said, was so great that the formation of a waiting-list was misleading to prospective patients. It raised unwarranted hopes of a bed, hopes doomed to disappointment from the start. There were beds in the hospital, but no staff to care for additional cases. Part-time nurses or W.V.S. personnel could not do night duty, even if they helped by day. In fact, the only place where it was possible for these patients to get attendance at night was in their own homes. Since it was not possible to treat them in hospital, the aim must be to bring hospital facilities to the home.

Faced with this problem, his first step was to send a geriatric social worker to see those elderly patients he had been asked to admit but could not accommodate. The first difficulty had been that of providing suitable meals for patients who had nobody to cook for them. To meet this situation his hospital management committee had convened a meeting of representatives of the county health services, the county social welfare services, and the assistance board, with general practitioners from the local executive council. As a consequence of this meeting a standing liaison committee was formed to put into effect the recommendations of the B.M.A. Committee on the Care and Treatment of the Elderly and Infirm.

It was found that transport would be necessary to bring sitting and lying patients up to the hospital for out-patient examination and physiotherapy. A hot meals service was instituted by the W.V.S. This was the "meals on wheels" service. Also a laundry service for patients' dirty linen had been established, using the hospital as a headquarters for collection and delivery. Routine contacts were made with district nurses, the home help service, Red Cross workers, the W.V.S., occupational therapy teachers, and finally those who were willing to shop for the sick and to visit them from time to time. In many cases it was found possible to arrange for a service of "patient-watchers" among neighbours. This scheme was possible only where the co-operation of the general practitioner was forthcoming. The motto was, "Everything possible short of admission to hospital."

At present the system was in its infancy, but during the first three months of its life it had helped 100 patients who could not otherwise be cared for at home yet who could not be admitted to hospital. The visits of the geriatric social worker had been most useful in deciding the priority of cases for later admission. As a general rule two types of cases were given priority: those who could benefit by medical treatment within a short time, and those who were very ill under unsuitable home conditions. It was claimed that the service given by this system, however imperfect, was better than allowing patients to remain at home without such assistance, or than putting their names on a meaningless waiting-list.

The Ministry of Health has prepared the *Handbook for General Dental Practitioners* for the guidance of dentists taking part in the National Health Service. It describes the provisions of the N.H.S. Act and of the regulations up to November, 1948, as they apply to dentists. Copies have been sent to local executive councils for distribution to dentists on their lists.

Correspondence

Classical Caesarean Section

SIR,—The remarkable thing about the correspondence on classical caesarean section, the lower-segment operation, and rupture of the uterus (Sept. 25, 1948, p. 602, Oct. 16, 1948, p. 722, *et seq.*) is that it should take place at all. It is twenty-eight years since Eardley Holland and Munro Kerr introduced the lower-segment operation in this country, and about the same time since Beck, of Brooklyn, and DeLee, of Chicago, popularized it in America. Prior to that the essentials of modern technique had been well established by several Continental obstetricians. In the years that followed the superiority of the operation became manifest, and the position is now reached (or so one had supposed) when caesarean section *means* the lower-segment operation unless otherwise stated.

With many of the points raised by your correspondents I entirely agree; no operation, however good, is applicable to every case irrespective of the particular conditions present. What the conditions are that occasionally prohibit the use of the lower-segment technique have been clearly summarized by Mr. C. Scott Russell (Oct. 16, 1948, p. 722)—almost the only champion of the lower-segment operation in this correspondence. So far so good: but what disturbs me is that the many letters have collectively conveyed an impression that the contraindications to the lower-segment section are so many and the difficulties are so great as to make it more or less a "stunt" operation. Those surgeons who still routinely employ the classical operation are thus confirmed in their complacency. This attitude I deplore, and for the following reasons.

Although the mortality rate for all types of caesarean section is now remarkably low, there is, so far as I know, no large series of consecutive cases (500 or more) which can show a mortality rate of under 1% *save those in which the lower-segment technique was used* (for example, the 0.4% mortality rate reported by Free[1]).

The abdominal incision for the lower-segment operation is relatively small and is sub-umbilical; consequently there is seldom any exposure of the intestines. Theoretically this should lessen post-operative complications, and in practice I believe it does. Patients who have had the lower-segment operation generally make a quicker and easier recovery than do those in the other group, and the testimony of women who have experienced both operations is often eloquent on this point. After the classical operation the intestine sometimes adheres to the abdominal scar or, oftener, to the scar in the uterus. Obstruction is then a possibility, and may occur early by the involuting uterus dragging a loop of ileum down into the pelvis. This complication does not occur after the lower-segment operation.

It is generally stated that 4% of "classical" scars rupture in subsequent pregnancies (this figure would undoubtedly be higher if abdominal section were not so often again employed before the onset of labour). With the lower-segment technique the risk of rupture is greatly lessened. The uterus is incised in a part that is inert and which can therefore heal quietly and soundly. Firmness of the scar is further ensured by reinforcing the suture line by a layer of fascia or a fold of uterine muscle—a procedure that is impossible in the case of the other operation. Finally, it is unlikely that the placenta will become implanted over the scar in a subsequent pregnancy—a happening which it is generally supposed strongly predisposes to rupture.

Because of these facts rupture of a lower-segment scar is an unusual event and is estimated to occur in only 0.25% of cases. On this reckoning the risk of rupture is therefore only one-sixteenth of the risk associated with the classical operation. Convincing evidence of the increased safety is also found when the uterus is examined at a subsequent operation. It is seldom indeed that the "classical" scar does *not* show, in the emptied uterus, as a long, deep furrow, whereas the lower-segment scar is only rarely identifiable—far less does it show as a weakened area.

The slight delay in extracting the foetus is sometimes cited as a point against the lower-segment operation, and it is alleged that the establishment of foetal respiration may be delayed by the relatively large amount of anaesthetic which the foetus absorbs. This difficulty, if it exists, is largely overcome by the careful choice and competent administration of the anaesthetic.

So convinced am I that the classical caesarean section is now superseded that I should be disturbed if I heard that any friend of mine had been subjected (without good reason) to that operation. And if at some subsequent pregnancy she had the misfortune to suffer a rupture of her uterus my thoughts would be bitter as well as sad.

I was once asked by an eminent gynaecologist what type of operation was being employed in my country. When I answered, "Usually the classical operation," he shook his head sadly and replied, "I cannot understand the mentality of anyone who still uses the classical section." That was eighteen years ago; how much more forceful his words have now become.—I am, etc.,

Oxford. J. C. CHASSAR MOIR.

REFERENCE

1 *Amer. J. Obstet. Gynec.*, 1945, **49**, 401.

Spinal Anaesthesia for Caesarean Section

SIR,—If an anaesthetic technique is popular with some and condemned as dangerous by others, it means either that some are lucky when they have no trouble or that the others are violating some sound principle of anaesthetics. Many gynaecologists regard spinal analgesia in caesarean section as a procedure fraught with danger of sudden death to the mother, a danger which cannot be predicted in any particular case and about which nothing can be done. Some believe there may be biochemical changes, subtle enough to be indefinable, in pregnant women which make them liable to collapse under spinal anaesthesia. There are indeed sudden deaths in these circumstances, but I believe they are subject to a straightforward explanation and that they are preventable.

A spinal anaesthetic for a moderately high abdominal operation inevitably paralyses the nerve supply to the lower intercostal muscles, so that the lower and mobile part of the chest wall is temporarily put out of action. A full-term uterus splints the diaphragm, and the effect of this is increased by the Trendelenburg position and surgical packs. All that remains is for the surgeon's assistant to lean on the patient's chest to complete the insult to her respiratory mechanism. Even without this last there is a probability of collapse from anoxia if the patient is breathing air only. If she breathes oxygen, or there is means to inflate her with it, I believe the maternal risks are no greater than with other means of pain relief for this operation.

I am prepared to advance what I believe to be cogent arguments in favour of the trouble all being due to respiratory embarrassment, but at this stage I feel it is more profitable to end with a warning—but on behalf of the foetus. Contraction of the uterus is a notable feature of spinal analgesia, and it appears to increase with the passing of the minutes: time therefore must not be wasted. On one occasion I gave a spinal anaesthetic for a caesarean section because of placenta praevia. After the injection the diagnosis was confirmed by surgeon and assistants and the operation thus delayed some 30 minutes. Before the injection the foetal heart sounds gave no cause for alarm, but when the uterus was exposed some 50 minutes later it was tightly contracted, firmly gripping the foetus, which was found to be dead. On another occasion, with a different gynaecologist, there was a delay of some 20 minutes before the operation commenced, and my colleague, before opening the uterus, commented that so tightly was it applied that it almost revealed the sex of the foetus. In this case the infant was little the worse for the experience.—I am, etc.,

Oxford. R. R. MACINTOSH.

Vitamin E in Heart Disease

SIR,—In the *Sunday Express* of Feb. 20, 1949, "Doctor-M.P." writes an article under the heading "A medical discovery 'as great as insulin.'" He discusses the use of alpha-tocopherol (vitamin E) in heart disease and states that this drug "has been proved in my view as a doctor to show miraculous results in angina pectoris, in certain kidney diseases, and in

. . . Buerger's disease." He further asserts that its discovery is "officially recognized and proclaimed as one of the most beneficent in medicine since the introduction of insulin in 1922." He proceeds to upbraid the Ministry of Health for refusing to arrange for the import of "Vita E," which is being manufactured in Toronto.

Since Vogelsang, Shute, and Shute[1] published a series of articles on the use of vitamin E in heart disease, in which they claimed marked improvement in cases of angina pectoris and rheumatic and hypertensive heart disease, several workers in different countries have reported their failure to confirm these findings. Baer and his colleagues[2] found only questionable improvement in 6 out of 22 patients with congestive failure, angina pectoris, or hypertensive heart disease. In 11 similar cases Levy and Boas[3] found no clinical evidence to warrant the use of vitamin E. From a controlled study of 22 cases Makinson and his colleagues[4] concluded that vitamin E is of no therapeutic value in the routine treatment of angina pectoris. Gram and Schmidt[5] found no improvement in 63 out of 80 patients with heart disease (mainly arteriosclerotic) treated with vitamin E. Ball[6] found definite improvement in only 2 out of 10 cases of angina pectoris. Furthermore, not a single favourable report on any controlled observation of vitamin E in heart disease could be found. No controls were used in the series treated by the Shutes.

I should like, therefore, to make a strong protest against these observations of "Doctor-M.P." in a national newspaper. As a result of his article patients will undoubtedly harass their doctors to give them vitamin E. If they can get this drug their faith in it may result in some temporary improvement, as so often happens in cases of angina pectoris. But to buoy up the hopes of the many sufferers from heart disease with such dubious evidence is surely quite unjustified. From the reports already quoted the assertion that vitamin E is officially considered a great discovery is completely without foundation. In a panel discussion on cardiac therapy at the 1947 meeting of the American Medical Association[7] it was stated that vitamin E is of no value in coronary heart disease, hypertension, or rheumatic heart disease.

There might be a case for even further controlled experiments on alpha-tocopherol (obtained either in this country or from Canada). But there is no case for presenting vitamin E to the public as a great medical discovery for the treatment of heart disease.—I am, etc.,

London, N.W.10. K. P. BALL.

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2 *Amer. J. med. Sci.*, 1948, **215**, 542.
3 *Ann. intern. Med.*, 1948, **28**, 1117.
4 *Lancet*, 1948, **1**, 102.
5 *Nord. Med.*, 1948, **37**, 82.
6 *Lancet*, 1948, **1**, 116.
7 *J. Amer. med. Ass.*, 1948, **138**, 1031.

Nuffield Hospitals Trust

SIR,—The annotation (Feb. 19, p. 318) covering the recent report on the work of the Nuffield Provincial Hospitals Trust includes one curious and, I must suppose, unintentionally inaccurate sentence. This reads as follows:

"Among other projects supported by the Trust, always with a view to the better co-ordination of hospital services, the most noteworthy was the setting aside of £100,000 for the creation of the first professorship and Institute of Social Medicine in Great Britain—at Oxford under Professor J. A. Ryle."

The Chair and Institute at Oxford have never, of course, been concerned in any way with the co-ordination of hospital services. The purposes of the Institute, as laid down in the Resolution of the Trustees (1942), are as follows:

(*a*) To investigate the influence of social, genetic, environmental, and domestic factors on the incidence of human disease and disability.

(*b*) To seek and promote measures, other than those usually employed in the practice of remedial medicine, for the protection of the individual and of the community against such forces as interfere with the full development and maintenance of man's mental and physical capacity.

(*c*) If required by the University to do so, to make provision in the Institute for the instruction in Social Medicine of students and practitioners of medicine approved by the Board of the Faculty of Medicine in the University of Oxford.

During the six years following its inauguration I hope that the academic activities of the Institute, including the publication of some 50 papers by members of the scientific staff, have sufficiently established its claim to be working towards the fulfilment of these purposes. Medical economics and administration, much though they stand in need of careful study, are not within our terms of reference.—I am, etc.,

Oxford. JOHN A. RYLE.

*** Professor Ryle is right. The error arose through the fact that in the report of the Nuffield Provincial Hospitals Trust the work of the Institute of Social Medicine was described in a section headed, "Some Projects Supported by the Trust Towards the Better Co-ordination of Hospital Services."—ED., *B.M.J.*

Illness in General Practice

SIR,—The interesting article by Dr. John Pemberton (Feb. 19, p. 306) would have been more interesting and informative if he had carried the analysis of his data a step further. Neglecting the two categories accidents and obstetrics in Table IV, a statistical examination of the variability of diagnoses supplied by the seven doctors reveals discrepancies of a size that can hardly be ascribed to chance.

The difference between the average number of diagnoses in each category and that of the individual doctors can be expressed as follows:

Doctor	χ^2 Test	Contribution by:
A	44.16	Cardiovascular disease in excess 38.4
B	44.78	Cardiovascular disease in excess 29.4 Deficiency in mental ill-health 7.25
C	11.51	Deficiency in cardiovascular disease 8.2
D	4.72	Insignificant difference
E	9.72	Rheumatism in excess 8.35
F & G	13.97	Equal spread over categories
H	11.54	Deficiency in mental ill-health 9.3

The χ^2 value of 9.5 signifies a difference expected only once in 20 samples, while a value of 13.3 is expected only once in 100 samples. There are two possible explanations of these differences: (1) age groups or social or geographical influences affecting the various practices; and (2) variations in the judgments of the doctors concerned.—I am, etc.,

Sheffield. E. J. G. BRADFORD.

Pulheems

SIR,—With reference to "Surgeon-Lieutenant's" letter (Feb. 5, p. 244) I am not in a position to comment on the application of the Pulheems system in the Royal Navy, with which the writer's letter appears largely to deal, but I can clarify the situation slightly in so far as the Army's application is concerned.

I agree with "Surgeon-Lieutenant" that in Service life it would be more valuable to fit the man's duties to his previous occupation, and this in fact is the duty of the personnel selection officer in the Army. With regard to the length of time Pulheems examination takes, "Surgeon-Lieutenant" will agree that Pulheems is merely a new *method of recording findings on medical examination*, and, if the doctor examining the patient *knows* the system of medical classification he is going to use, the additional time taken to record the findings in accordance with Pulheems is no greater than with any other system.

All entrants to the Services are examined by the civilian medical board of the Ministry of Labour and National Service, whose examination is complete. These boards consist of four medical officers, one chairman, and one orderly, and the boards are able to complete the examination of 20 men in 2½ hours (*Supplement*, Feb. 12, p. 74). On these medical boards lies the responsibility to certify that the individual entering the Service is fit for service.

This being the case, the first examination of all new entrants to the Army is merely a verification of the findings of the civilian medical board, taking into account their medical report and the history given by the individual regarding the period which has elapsed since the civilian board examined him. The finding of the medical officer in this instance is taken as the individual's initial Pulheems assessment, and after a period not exceeding four months the individual is again examined and given a Service Pulheems assessment, which is based on the

findings on examination and on the experience of the individual during his period of training by both the medical officer and the training officer. Army experience shows that both these examinations can be carried out quite adequately allowing 10–15 minutes per man.

The other point which is, I think, relevant is the fact that 90% of Service intakes are fit men who can be dealt with very quickly, leaving more time for the remaining 10% who are not so fit. The time taken to examine a man will depend on the purposes behind the examination and the object of it, and may vary from 5 minutes to 30 or even 40 minutes, depending on what the doctor is looking for and what he finds.

If "Surgeon-Lieutenant" cares to study the instructions and literature available on the grading system of classification formerly used by the Ministry of Labour and National Service, also by the Royal Navy and the Royal Air Force, and the old medical category system used by the Army, he will no doubt realize why I have said that Pulheems goes a long way towards unifying and rationalizing our standards and towards improving our clinical appreciation of physical and mental health.—I am, etc.,

London, S.W.1. R. T. FLETCHER, Major, R.A.M.C.

Oral Reactions to Penicillin

SIR,—In a paper carrying the above title, recently published in this *Journal*, Dr. W. G. Cross (Jan. 29, p. 171) quotes among others a paper by Ellinger and Shattock (Oct. 26, 1946, p. 611). Dr. Cross states that Ellinger and Shattock had described the oral reaction to penicillin—i.e., a slaty discoloration of the tongue following local application—"as largely one of nicotinamide deficiency." Ellinger and Shattock reported the case of a woman who had previously shown clinical signs of nicotinamide deficiency, and who developed pellagroid symptoms after local treatment of the mouth with penicillin, particularly of the central and peripheral nervous systems, and simultaneously a slaty discoloration of the tongue, unknown in human, but common in canine, nicotinamide deficiency. It was possible to repeat in the same person the precipitation of pellagroid conditions, as well as discoloration of the tongue, by renewed local application of penicillin and to investigate simultaneously the urinary elimination of nicotinamide metabolites. The latter were found to be diminished during penicillin application, thus confirming the presence of nicotinamide deficiency. The authors stated, contrary to the quotation of Dr. Cross, that probably "the changes observed are partly due to a local effect of the drug on the tongue," and that "the local effect causing the darkening of the tongue has still to be investigated."

Cross claims in the summary of his paper that "neither nicotinamide deficiency nor . . . is responsible for the oral reactions." We do not know on what evidence this statement is based. He does not mention examination of the elimination of nicotinamide derivatives, the only reliable basis for the diagnosis of a nicotinamide deficiency. If, as it seems, his statement is based on the fact that the inclusion of the totally inadequate amount of 2 mg. of nicotinamide in the penicillin tablets did not prevent the development of darkening of the tongue, then his statement is inconclusive. When for some reason or other the nicotinamide-releasing intestinal bacteria are out of action about 100 mg. of nicotinamide daily for several days is needed to prevent, and 200–500 mg. daily to cure, a nicotinamide deficiency.—We are, etc.,

London, S.W.1. P. ELLINGER. F. MACKENZIE SHATTOCK.

Epilepsy and Foetal Behaviour

SIR,—I have hesitated to reply to Dr. Thomas D. Power's question under this title (Jan. 29, p. 197) because I have not sufficient knowledge of physiology and, in particular, the work of Coghill and Barcroft on primitive behaviour. With this reservation, however, I must say that the theory that an epileptic fit is a reversion to a foetal level of nervous function does not appeal to me. The epileptic convulsion is not explainable solely by the release of lower functions, but must include also pathological overactivity of cortical neurones. Furthermore, behaviour in a fit is not always "total," but may be exquisitely localized.

Finally, it is not correct to describe movements in a fit as spastic, as this is a term which applies to a state of muscle tone and not to movements.—I am, etc.,

Newcastle-upon-Tyne. F. J. NATTRASS.

Approach to the Frontal Lobe

SIR,—Psychosurgery is certainly not without its faults and cannot be defended as a perfect type of psychiatric treatment, but it should not be the subject of seemingly ill-informed attacks such as the counterblast by Dr. P. Glees (Jan. 29, p. 193).

The "new access" recommended by Freeman was in fact explored as an experimental approach by Fiamberti, who published his results in 1937. After careful anatomical studies indicating that a type of transorbital lobotomy did in fact sever the thalamic connexions of areas 9 and 10, as in the more conventional topectomy operation, Freeman began to direct a series of transorbital lobotomies in 1946.

The "predictable results" for which Dr. Glees asks may be shown by the preliminary report of Jones and Shanklin[1] and by Freeman's[2] comments on a series of 100 cases. Favourable response was claimed in one-third of the schizophrenics and one-half of the involutional cases. The "serious consequences" feared by Dr. Glees can be stated more explicitly—two cases in the series showed complications, and the absence of "unfavourable personality symptoms noted after prefrontal lobotomy" is commented on.

The "indications for a lobotomy operation" are admittedly not yet as clear as one could wish, but the field is not altogether untilled. May I refer Dr. Glees to Kalinowsky and Scarff,[3] *The Selection of Psychiatric Cases for Prefrontal Lobotomy*, or the U.S. Veterans Administration publication, *Criteria to Guide in Selection of Patients for Prefrontal Leukotomy*? If those do not sufficiently represent "a united effort of research and clinical observation" Dr. Glees should try the sixth report of the Group for the Advancement of Psychiatry, *Research on Prefrontal Lobotomy*, or perhaps he will be better pleased with *The Human Frontal Lobe*, which represents the observations of a medical-surgical scientific group of 96 collaborators.[4]—I am, etc.,

Ilkley, Yorks. MAX VALENTINE.

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3 *Amer. J. Psychiat.*, 1948, **105**, 81.
4 Lewis, N. D. C., ibid., 1948, **105**, 151.

Fibrositis

SIR,—The letter of Dr. I. H. Milner (Nov. 27, 1948, p. 955) forces me to continue a fruitless discussion reluctantly. Naturally I could in my letters only mention the fundamental conception of diminished blood flow leading to hypoxia in the myalgic spots, which, I added, might be caused either by vasoconstriction or vasodilatation. I stressed that the details of the theory are given in a special paper the publication of which I am sorry to say has been delayed.

Dr. Milner, now following Dr. Cyriax, postulates a host of pathological processes of a purely theoretical nature for fibrositis. If not psychogenic or imaginary the processes are in the cervical spine, and he mentions the results of prolonged degenerative processes or a more severe single trauma, giving way of the disk, approximation of the vertebral bodies, marginal lipping, osteophytes, etc. For these assumptions not a shadow of positive evidence is adduced. On purely theoretical grounds it is postulated that root lesion is present in primary fibrositis.

The assumptions put forward do not stand a logical analysis. First, the symptoms and signs of fibrositis do not correspond to a spinal-root lesion. Secondly, it is a fact that "fibrositis" can be cured by injection of procaine into each myalgic spot—this could not be possible if it were caused by a root lesion. Lastly, Dr. Milner suggests "that fatty herniae may occasionally be the result of fatty degeneration of muscles and their fasciae," a view which runs counter to the fundamental conceptions and findings of modern pathology and which will make R. Virchow turn in his grave. He claims that his views "harmonize with proven first principles." One must ask, What are these principles?—I am, etc.,

London, N.W.11. M. G. GOOD.

Whither Tuberculosis?

SIR,—The airing of a subject, even so big and complicated a one as the present position of combating tuberculosis, in your correspondence columns is most helpful. May I reiterate some of the points I tried to make in my previous letter?

(1) Complications will be clarified by bearing broad principles in mind, for sometimes these are forgotten in a maze of "directives" and a multiplication of officers, clerks, forms, and regulations.

(2) Regulations and "directives" should lessen and not increase overlapping.

(3) In any disease, and especially in dealing with tuberculosis, the interplay of cause and effect, of prevention and treatment, must be grasped. But the recognition of such interplay should prevent individual doctors and their assistants from attempting to encompass too much. They must be guarded against trying to do too many jobs.

The Lancashire team without doubt pursued a straight path, trod a well-paved road up to "the crossroads." The road now may not be so straight and well paved. Much new ground has to be covered. For example, mass radiology must be developed in ways recent experience has taught us. B.C.G. vaccination should be extensively used. Dr. G. Lissant Cox, especially if ever vigilant to observe the points I have mentioned above, can still help.

There is a dangerous trend to-day—namely, belief in and exaltation of supermen. Whether such be chairmen of important advisory committees, or paymasters-general in big regions, or others in high positions, we must be careful not to count them as godlike Führers. Fortunately in our fight it is the prowess of the individuals in the fighting line which counts for success, as Dr. W. H. Tattersall has indicated in his letter (Feb. 19, p. 322).

I was perhaps to blame for reference to an unimportant detail in my last letter. But it appeared to me and many of my friends that my fellow Liverpudlian, Dr. Lissant Cox (apparently all the best people were born in Liverpool! But what has that got to do with the argument?), did not help clear thinking by misusing the word "directive," which until a few years ago was used only as an adjective, by saying a *disease* can merge into a directive. He could have expressed his meaning, I think, more clearly. And it was rather unnecessary to bring out what surely everyone working on tuberculosis in England knows—that public health committees have been superseded by regional boards. This has been observed even by those privileged to live "in a far corner of a minor county."—I am, etc.,

Mundesley, Norfolk. S. VERE PEARSON.

Unusual Case of Twins

SIR,—The case here recorded occurred by a coincidence on the day of publication of an account by Drs. J. H. Young and F. E. Cull (Oct. 16, 1948, p. 713) of an unusual case of twins. The unusual sequence of events during labour is of interest in both cases.

A multigravida, aged 31, attending the antenatal clinic during the 37th week of pregnancy, was diagnosed as having twins. She had had normal deliveries of living children in 1942, 1944, and 1946. Her health had been good throughout the existing pregnancy. *X*-ray examination confirmed the presence of twins, showing one child lying as a breech presentation with the back to the right, the other as a transverse occupying the fundus uteri with the head to the left. At 38 weeks the foetal presentations were diagnosed by palpation as a vertex and a breech, both presenting parts lying above the pelvic brim.

Labour began on Oct. 15, at 1 a.m., the patient having reached full term. She was admitted to hospital at 11 a.m. on the same day. On examination the foetal positions were diagnosed as L.O.A. and R.S.A. respectively. Pains were strong, and at 1.45 p.m. a vaginal examination showed the os to be fully dilated, the vertex low, and the position an L.O.A. The membranes were ruptured during the examination. The first child was delivered normally at 2.40 p.m. and cried well. At 3.15 p.m. a vaginal examination was made with a view to rupturing the second bag of membranes, but no membranes could be felt. The breech was low and the position an R.S.A. At 3.25 p.m. the second infant was born as a breech completely enclosed in an apparently unruptured caul. The edge of the placenta appeared on the left side when the child was born as far as the scapulae, and the placenta was expelled complete with the rest of the ovum. On rupturing the caul to free the child it was noticed that there were two layers of membranes over the child's face, the more superficial layer being found to consist of part of the membranes of the first child. There appeared to be little or no amniotic fluid inside the caul, suggesting that a small invisible rupture had occurred earlier and explaining the difficulty of feeling the membranes on vaginal examination.

At 3.30 p.m. signs of separation of the first child's placenta were recognized. On expulsion it was found to be complete except that a portion of the membranes was torn away from one side, corresponding to that found over the second child's face.

The infants were both live males and were dissimilar in appearance. The first weighed 5 lb. 4 oz. (2.4 kg.) and its placenta 18 oz. (530 g.). The second child weighed 6 lb. 2½ oz. (2.8 kg.) and its placenta 21 oz. (594 g.).

A summary of the course of events in this labour will serve to emphasize the points of interest: (1) Normal birth of the first child as a vertex. (2) Extrusion of the complete ovum containing the second child together with a portion of the first child's membranes. (3) The expulsion of the first child's placenta after the second child's birth, with part of the membranes missing.

I should like to express my gratitude to Mr. Albert Davis and to Dr. S. G. Chapman for their kind advice and permission to publish this report.

—I am, etc.,

London, S.W.10. J. F. T. ALLISON.

Treatment of Varicose Veins

SIR,—Professor A. M. Boyd and Mr. D. J. Robertson[1] published an article in the *Journal* on varicose veins, mentioning particularly recurrences after treatment and the risks of giving retrograde injections during the operation of saphenous ligation. This warning was substantiated by phlebographic studies carried out by injecting radio-opaque material at the fossa ovalis and at the knee. As the material was shown by *x* ray to enter the deep veins, particularly in the thigh, it was considered dangerous to give an injection of sclerosant for fear of causing deep-vein thrombosis. The danger was greater in the thigh than in the leg.

Atlas[2] also stated that retrograde injection was hazardous and should not be done. On reading this latter article I did a series of phlebograms to find out what happened to material given as a retrograde injection. I found that material injected into the long saphenous vein entered the deep system whether the injection was given retrogradely from the fossa ovalis and knee or from below upwards at the ankle. A deeper shadow was obtained in the leg than in the thigh. My conclusion was that retrograde injection from the fossa ovalis was safer than from the knee, because the opaque material was diluted and swept away more rapidly in the thigh than in the leg. Both my findings and my conclusions were the very reverse of those of Professor Boyd and Mr. Robertson.

I am not suggesting that I am right and they are wrong or vice versa—phlebograms are very tricky things. I am suggesting that such conflicting evidence should keep our minds open on this problem. We have not proved very much, for we knew beforehand that the blood goes from the superficial to the deep veins, and the position of the main communicating veins has been known for a long time. I certainly feel that no case has been established for abandoning retrograde injections.

This is such a useful ally to ligations—one or more—that it should be continued; but it should be used with care and skill. Standard massive doses of strong sclerosants should be abandoned, and minimal amounts of minimal strength solutions consistent with obtaining thrombosis should be used. The quantities and strengths to be used vary with each patient and are arrived at by experience. It is safe to say, for instance, that in using "ethamolin" one is never justified in injecting greater than half-strength, while in the majority of cases one-third strength is sufficient. Let us not abandon so useful a form of treatment on insufficient evidence of its danger, but rather let us find out how to use it safely.—I am, etc.,

Sydney, Australia. C. H. WICKHAM LAWES.

REFERENCES

1 *British Medical Journal*, 1947, **2**, 432.
2 *Surg. Gynec. Obstet.*, 1943, **77**, 136.

Anaesthetic Problems

SIR,—I have followed with close interest the correspondence on two anaesthetic problems. First, the question of spinal anaesthesia for caesarean section. It is of course a satisfactory method in selected cases and in expert hands. Two important points are to control any drop in blood pressure and to ensure oxygenation of the patient. Indications for its use are nowadays fewer with the use of *d*-tubocurarine and light general anaesthesia with cyclopropane or ether in a closed circuit. Excellent operative conditions are achieved with good retraction of the uterus; the baby is active and the mother is very well post-operatively.

Secondly, the use of surface analgesics in endoscopic examinations. At the endoscopic clinic at the Royal Sussex County Hospital we have for the past three years been using *d*-tubocurarine and sodium thiopentone with excellent results and, considering the poor condition of most of the patients, with very little anxiety. Here again adequate oxygenation is absolutely necessary. I have no doubt that from the patients' point of view this type of anaesthesia is far preferable to local. They are mostly awake within ten to fifteen minutes of the examination.—I am, etc.,

Hove, Sussex. J. H. CRAWFORD.

Temperature Recording

SIR,—We all rely so much on clinical thermometry that its accuracy is a matter of extreme importance; therefore the communication of Professor Alan Moncrieff and Dr. B. J. Hussey entitled "Temperature Recording in Sick Children" (Dec. 4, 1948, p. 972) and your annotation on "Temperature Recording" (p. 991) are welcome and timely.

One definite advance has been made in clinical thermometry during the past ten or fifteen years. No one believes now that a half-minute thermometer gives a correct temperature if placed in the axilla for half a minute. It was not always so. To get an accurate temperature in the axilla the skin should be dry and nothing should interfere with the closest possible approximation of the sides of the axilla. No dressing-gown, nightgown, or pyjamas must interfere with this approximation. For five, ten, fifteen, or twenty minutes the thermometer must remain *in situ*, until the temperature in the axilla equals or at least closely approximates to the temperature of the body. It is impossible to say how long that may take. Clearly, if the surface of the body is cold or if the patient is emaciated it will take a longer time than if he were warmly covered up in bed or well nourished.

For quick and accurate thermometry the rectum is the one place in which a half-minute thermometer will give an accurate record in half a minute. Two points must, however, be observed: the bulb of the thermometer must be in the rectum, and the patient must be at rest for at least half an hour before the temperature is taken. If taken immediately after exercise a temperature of 101° F. (38.3° C.) may be found in a perfectly healthy person.

This letter would probably never have been written but for a statement in the last paragraph of the annotation: "Frequently insufficient care is taken in the length of time a thermometer should be left in position; at least two minutes for a half-minute thermometer." Such a procedure will rarely, if ever, give an accurate body temperature in either the axilla, the groin, or the mouth. The mention of two minutes, even if qualified by "at least," is, I think, most unfortunate, and I deeply regret the suggestion of such a time limit.—I am, etc.,

Dublin. ALFRED R. PARSONS.

SIR,—Now that the seasonal outbreak of correspondence on the subject of temperature recording has occurred, may I add my contribution? A clinical thermometer bearing the N.P.L. (National Physical Laboratory) monogram can be relied upon to measure accurately the temperature of anything in contact with the bulb within the limits (0.2° F.) stated in the certificate and in the time stated. To suggest that it takes longer is derogatory to that institution.

The reason why a thermometer may not record the true temperature of that part of the body into which it is inserted until some minutes after the time etched on the thermometer is that a cold thermometer chills the tissues with which it is in contact, and these may take some minutes to regain their original temperature. The thermometer will accurately record at the half-minute (or whatever the particular time may be) the temperature of the chilled tissues. The length of time that it takes, therefore, to record the true body temperature will depend mainly on how cold the thermometer is to start with, and this naturally varies on different occasions.

A simple method of measuring the true sublingual temperature in just a trifle longer than the time stated on the thermometer is to place the bulb under the tongue on one side for a quarter of a minute, and then, without removing it from the mouth, to place the bulb under the other side of the tongue for the requisite half-minute or so. By placing it on one side first, the temperature of the mercury in the bulb is brought to within a degree or two of the true sublingual temperature. There is then no chilling effect on the tissues when it is placed on the other side. By this means a patient's temperature may be accurately recorded in three-quarters of a minute, instead of the ten minutes suggested by some of your correspondents. —I am, etc.,

London, S.E.22. BERNARD FREEDMAN.

Proguanil in the Sudan

SIR,—In contrast to the rather disappointing results described by Dr. E. S. Walls (July 24, 1948, p. 225) of the use of proguanil ("paludrine") as a malaria prophylactic in Sierra Leone, I have found it extremely satisfactory in this district of the Southern Sudan.

The opportunities for estimating the value of a prophylactic drug are considerable in this area, for malaria is hyperendemic, with *P. falciparum* as the predominant parasite, and not only do many officials live in houses which are not mosquito-proofed (many such as myself prefer not to be hemmed in with mosquito wiring) but most spend a great deal of their time trekking in the forests, where the chances of being bitten by infected mosquitoes are great.

For the last two years I have carefully observed the results of various regimes of proguanil administered to British officials and Northern Sudanese Arabs under my care. The latter arrive in the area without any immunity to the local strains and appear to be as susceptible to malarial attacks as the British, though the severity of the attacks is often lessened—due no doubt to the non-specific resistance they have acquired by their experiences of the disease in the north. I have reached the conclusion that if proguanil in a dosage of 350 mg. or more per week is taken regularly (the easiest arrangement to remember is half a tablet at breakfast each morning) then the chances of acquiring an attack of malarial fever, in this district at least, are very small indeed. My conclusions are supported by the following figures.

Of 14 European adults taking three or more tablets of proguanil per week, two attacks of short-term fever (of unknown origin, but possibly malarial) were seen in an aggregate of 103 man-months at risk. Of four Northern Sudanese adults living in my compound and taking three tablets per week under my continuous supervision, two cases of short-term fever (again of unknown origin, but conceivably malarial) were seen in an aggregate of 21 man-months. In none of these cases were the fevers typical of malaria, and the blood films were negative.

By contrast, among 32 Northern Sudanese—who had in fact been issued with mepacrine, but few of whom took it except when they felt fever coming on—169 cases of "fever" occurred in an aggregate of 156 man-months at risk. The last figures are the result of a questionary and may be slightly exaggerated, for though I saw many of these cases, some with positive slides, most were self-treated with the mepacrine issued for prophylaxis and did not report to hospital. I feel, however, that it is near the truth.

Used in the treatment of M.T. malaria proguanil has been disappointing. In the recommended dosage of 100 mg. thrice daily for ten days it is certainly inferior to mepacrine or quinine as regards the rapidity with which the fever is reduced, and I have even seen positive blood films on the 5th day of such a regime. I have not at any time seen ill effects attributable to the drug itself.

It has been known for many years that malaria differs in different parts of the world. It differs in severity, clinical

manifestations, and in its reactions to various methods of treatment. Is it therefore surprising that the different strains should differ in their susceptibility to suppression or true causal prophylaxis by proguanil? Is it not rather more surprising that manufacturers of antimalarial drugs should confidently draw conclusions and issue instructions which they apparently intend to be of world-wide application when these are so often based on experiences in limited parts of the globe? At a time when many are leaving the home country to seek new lives abroad, your columns can help to teach the valuable lesson that advice on matters of protection against endemic diseases is best obtained from those with local experience, and that generalized advice may be misleading or inadequate.—I am, etc.,

Li Rangu, Sudan. P. H. ABBOTT.

POINTS FROM LETTERS

Treatment of Simple Ganglion

Mr. H. J. NIGHTINGALE (Milford-on-Sea, Hants) writes: The correspondence on the treatment of ganglion reminds me of a method, not so far advocated in your columns, which I found in a surgical textbook some years ago. The author, whose name I have forgotten, prided himself on writing a book on surgery for the first time in English instead of Latin; he flourished in the reign of William and Mary. His methods for emergency surgery such as strangulated hernia were often excellent, and he even anticipated Lister by his repeated advice to wash the wound during the operation with spirits of wine. But when he came to the treatment of ganglion his surgical instinct was overcome by the older principles of magic. He advised first of all the family-Bible method (thus confirming your correspondent's idea that this technique dates from the days of Queen Anne), wisely suggesting that the force used should not be enough to break the bone. If this failed, he recommended binding on with plaster a piece of one of the heavy metals, "best of all a lead bullet that has killed one of the larger animals, such as a stag." But magic had its limitations even for him, and he mentions only to condemn in his more scientific days "such barbarous ideas as bringing the sufferer in contact with the hand of a corpse."

Penicillin Sensitivity

Dr. H. H. MARGULIES (London, N.W.2) writes: With reference to the recent frequent correspondence on the subject of penicillin sensitivity, I think that the following case may be of general interest. A boy aged 11 years, slightly plethoric, developed acute tonsillitis with a temperature of 102° F. (38.9° C.). I gave him 500,000 i.u. of oral penicillin daily for four days, and the condition has cleared completely. The boy was never given penicillin before. Fourteen days later the boy started to complain of pains in his wrists and ankles, and again shot up a temperature of 100° F. (37.8° C.). I could find nothing abnormal on examination till two days later, when he developed a severe urticaria over the whole body coupled with considerable, very painful swellings in the joints of both elbows, hands, knees, and feet. He was given large doses of "benadryl" and aspirin, but the condition did not start subsiding till nine days later. It took over three weeks to clear completely, and the boy has still shown after seven weeks a tendency to urticarial weals on the slightest injury.

Classical Caesarean Section

Dr. C. UHMA (London, W.3) writes: In his letter (Feb. 5, p. 242) on the interesting problem of caesarean section Dr. Tim Boland does not state the type of case under his treatment. To judge whether the classical caesarean operation was rightly chosen it is very essential to know which followed—hysterectomy or myomectomy. In the first case it makes no difference if the lower-segment operation or the classical one was performed. In the second case it would be preferable, in my opinion, to perform the lower-segment operation after removing the fibroid as a whole than to make another incision for the classical section and so to extend the injuries to the uterus which was left.

Causes of Rib Fracture

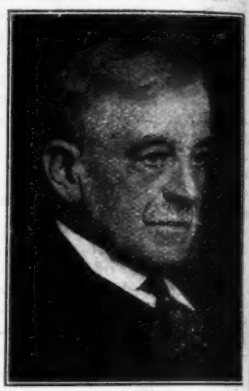
Dr. A. H. MICHAEL-PHILLIPS (Littleborough, Lancs) writes: I am prompted by recent articles in the *Journal* to record the following. About two years ago I was called to visit a young woman of about 35 years of age who had severe pain in the left side. She had been out earlier that day with her young man, and on rising from the bank on which they had been sitting she felt something snap, "like a twig." She experienced a sudden sharp pain in her left chest and got home with difficulty. It seemed too slight a degree of trauma, but *x*-ray examination confirmed the diagnosis of a fracture of the left 7th rib.

Obituary

SIR WILLIAM HALE-WHITE, K.B.E., M.D., F.R.C.P.

Sir William Hale-White, who died at his home in Oxford on Feb. 26 at the age of 91, was well known as a clinician and teacher and as the author of a famous textbook. He was on the staff of Guy's Hospital for thirty-four years.

William Hale-White was born on Nov. 7, 1857, in London. His father, William Hale White, was a distinguished nineteenth-century writer who used the pseudonym "Mark Rutherford." Hale-White entered Guy's Hospital Medical School in 1875. He graduated M.B. with honours in medicine in 1879, and proceeded M.D. a year later. After qualifying, he was resident in Guy's Hospital as a house-physician, and was subsequently resident medical officer at the Evelina Hospital for Children. In 1881 he became demonstrator in anatomy at Guy's, and continued this work until 1885, when he was appointed assistant physician. He then took over the lectureship in materia medica, pharmacology, and therapeutics, and continued to hold this post until 1899, when he became lecturer in medicine.



[*Press Portrait Bureau*

It was in 1892 that the first edition of *Materia Medica, Pharmacy, Pharmacology, and Therapeutics* appeared. Its success was deserved, and it is still in demand. The twenty-sixth edition was published in 1944. A more elaborate work was the *Textbook of Pharmacology and Therapeutics* which Hale-White edited in 1901. Another book, *Common Affections of the Liver*, published in 1908, embodied his considerable experience of this subject as a clinician and as a teacher.

Hale-White was elected F.R.C.P. in 1888, and he was one of the examiners for the College for eight years. He was also censor, councillor, Croonian lecturer in 1897, and Harveian orator in 1927. His four Croonian lectures were concerned with the means by which the temperature of the body is maintained in health and disease. This was a subject to which Hale-White had for many years paid special attention. He had taken part in a discussion on pyrexia and its treatment at the Bristol Meeting of the British Medical Association in 1894, and had previously published papers in the *Journal of Physiology* "on a method of obtaining the specific heat of certain warm-blooded animals." The Harveian oration, "Bacon, Gilbert, and Harvey," was a consideration of the influence which men around Harvey might have had in encouraging him to investigate by experimental observation rather than by deduction from the opinions of previous workers.

During the 1914–18 war Hale-White was a brevet-colonel and consulting physician to a number of war hospitals and a member of the Final Medical Appeal Board. He was also chairman of Queen Mary's Royal Naval Hospital, Southend. In 1919, after twenty-nine years as physician to Guy's Hospital, he retired and was made consulting physician. In the same year he was created K.B.E. He was president of the Medical Society of London in the following year, and president of the Royal Society of Medicine in 1922–3. For many years he was treasurer of the Association of Physicians of Great Britain and Ireland, and much of the success of the Society, of which he was president in 1930–1, was due to his work for it.

Hale-White was much sought after by universities as an examiner first in materia medica and subsequently in medicine. He wrote many papers for *Guy's Hospital Reports* and for other medical journals. He was responsible for several articles in *Allbutt's System of Medicine* and in *French's Index of Differential Diagnosis*. After his retirement from practice

Hale-White devoted himself to the study of medical history. He completed a short biography of Laennec in 1923, and in 1935 his *Great Doctors of the Nineteenth Century* was published. There followed in 1938 his book on Keats.

He married, in 1886, Edith Jane, daughter of Alfred D. Fripp, the artist, and sister of the late Sir Alfred Fripp, a colleague of Hale-White's at Guy's Hospital. She died on Nov. 30, 1945. Their only son is a physician in London, and to him the sympathy of many colleagues and friends will be extended.

Dr. FRANK PHILIP GILBERT DE SMIDT, who was 58 years of age, died at his home in Nairobi, Kenya, on May 19, 1948, after a long illness bravely borne. He was formerly officer in charge of the bacteriological section of the Medical Research Laboratory, Nairobi, and bacteriologist to Kenya. He was born near Capetown, and was educated in England at Brighton College and then at the London Hospital, where he qualified in 1916. After a period of active service in the first world war he took the D.P.H. and became a research worker in bacteriology for the Food Investigation Board of the Department of Industrial and Scientific Research. Later he held the post of assistant director of the clinical laboratory at the Manchester Royal Infirmary, and subsequently that of pathologist to the Brompton Hospital for Consumption. He then joined the colonial medical service and went to Kenya in 1926 to take up his appointment at the Medical Research Laboratory, Nairobi. There he carried out research on many subjects, notably on plague, pneumonia, and rabies. The vaccines which he prepared were used throughout East and Central Africa. He was the author of a number of papers on bacteriological subjects, and he was widely esteemed by his co-workers in the same field. After ten years in Kenya he was invalided out of the service, and during his remaining years he occupied himself as a member of the Rationalist Press Association of Great Britain and the Rationalist Association of Australia. Dr. de Smidt leaves a widow and a daughter, who is also a doctor.—A. E. R.

Dr. ELAYEDATH ACHYUTA MENON, who died on Sept. 7, 1948, at Irinjalakuda, Cochin State, was born in 1888, qualified in 1912, and served in Mesopotamia during the 1914–18 war. After a period as resident medical officer at the Rajah Sir Ramaswamy Mudaliar Lying-in Hospital, he came to this country and took the Edinburgh F.R.C.S. in 1927 before going out to the Tanjore and Royapuram medical schools, where he was lecturer in operative surgery. He was appointed professor of obstetrics and gynaecology at the Madras Medical College, and later he became assistant superintendent of the Women and Children's Hospital. Soon after completing his work there he took the M.R.C.O.G. From 1936 to 1944 he was professor of obstetrics and gynaecology at the Andhra Medical College, and he was on the staff of the King George Hospital at Vizagapatam.

Dr. EDWARD SEYMOUR CHAPMAN died on Jan. 14 at the age of 69 after a brief illness. He graduated M.B., Ch.B. at Glasgow in 1901, and in 1905 gained his doctorate with honours and won the Bellahouston Gold Medal. After holding resident posts at the Western Infirmary he was for two and a half years assistant physician at the Belvidere Fever Hospital, Glasgow. Chapman then went to the Hertford British Hospital in Paris for some four years, and he took the Edinburgh F.R.C.S. in 1911. After a short period in Southbourne, he came to Scarborough in the summer of 1914. In the first world war he was in the R.A.M.C. for five years, serving in Malta and India, and he became divisional surgeon specialist in Lahore. During his service he suffered a fracture of the skull which caused him much pain and illness on his return to civilian life. When he returned to Scarborough in 1919 Dr. Chapman was appointed to the staff of Scarborough Hospital, and was honorary physician there until he retired in 1938, when he became honorary consulting physician. For twenty-seven years he was the medical officer in charge of the venereal disease clinic in Scarborough. He was also appointed medical officer to the Royal Northern Sea Bathing Infirmary, Scarborough, in 1929, and he still held this position at the time of his death. For twenty years he had been a part-time referee for the Ministry of Health, chairman of the Scarborough National Service Medical Board, a member of the Disablement Advisory Committee, and medical examiner for the Civil Service Commission and for the Ministry of Education. In July, 1946, he was appointed master of the Dr. Smart's Homes at Scarborough. Dr. Chapman had always been a most active, loyal, and enthusiastic member of the B.M.A. He served on many committees, and was honorary secretary of the Scarborough Division from 1922 to 1928. He was chairman of the Division in 1932–3, and president of the Yorkshire Branch in 1946–7. All who knew Chapman realized his worth as a doctor and as a man. His capabilities were such that he enjoyed the respect of both patients and colleagues. He was a man of great integrity, and performed many good deeds quietly and unostentatiously. Scarborough has lost a good doctor in every sense of the word, and the public have lost a friend, counsellor, and physician whose place it will be difficult to fill. Dr. Chapman is survived by a widow, to whom the sympathy of all his friends and colleagues will be extended.—C. E. W.

Dr. URBAN MARKS died suddenly in his surgery at Swansea on Feb. 4 at the age of 68. He came to Swansea as house-surgeon to the Swansea Hospital forty-two years ago, and soon afterwards started in general practice in the town. He very soon built up a large panel practice. He was from the beginning an active member of the B.M.A. and became secretary and later chairman of the local Division. He was a founder member of the Swansea Public Medical Service, one of the first to be formed in the country, and was its chairman for many years. Dr. Marks was on the out-patient staff of the hospital for twenty-five years, being made honorary consulting physician on his retirement three years ago. He was actively concerned with hospital administration during the whole of this period. He was secretary and then chairman of the hospital medical staff, and he was also chairman of the Swansea Panel Committee. In 1941 he was appointed a member of the Medical Planning Committee of the B.M.A. For some years he had been a member of the old Swansea Board of Guardians, and he took an active interest in the St. John Ambulance Brigade. He was its commissioner in Swansea for twenty-six years. He became a Knight of Grace of the Order, and a member of the Ambulance Committee for Wales. During the recent war he was honorary medical officer to the Llwynderw Military Convalescent Hospital, of which his wife was the matron. During the 1914–18 war he had served as a captain, R.A.M.C., in Mesopotamia. Dr. Marks worked at high pressure during the whole of his career, and devoted a large part of his life to the administrative side of medicine. He was never happier than when attending a meeting of his fellow practitioners. He died, as he would have wished, in harness. He leaves a widow and a son and daughter, both married.—W. H. T.

Dr. JAMES JOHN GALBRAITH died suddenly at Dingwall on Feb. 1 at the age of 71. He came from an old Highland family and was educated at Blair Lodge, Polmont. As an undergraduate at Edinburgh University he was one of the outstanding students of his year, and he graduated with honours in 1899. For some time he worked under Professor E. Sharpey-Schafer as Crichton Research Scholar in Physiology, and it was probably then that he decided to specialize in the study of tuberculosis, to the elimination of which in the Highlands he was to devote the better part of a lifetime. Before returning to his home county he first held appointments at the Royal Victoria Hospital, Edinburgh, and was later medical superintendent at the Ochil Hills Sanatorium. During this period he was one of the band of pioneers led by the late Sir Robert Philip, and it was common knowledge that he was held in very high esteem by his chief in their crusade against tuberculosis. If he had so desired Dr. Galbraith could probably have remained at Edinburgh and pursued an academic career, but his longing to be of service in his own part of the country was a deciding factor. In 1909 he started to practise at Dingwall, and in 1920 the opportunity to enter the public health service arose, and he became tuberculosis officer to the county of Ross and Cromarty. In 1931 he succeeded Dr. W. Maclean as M.O.H., an appointment which he held until his retirement in 1939. Public health in Ross-shire owes a great debt to those two men. They not only were eminently competent but possessed the personal qualities which enabled them to overcome difficulties which would have been insuperable to lesser men. Their fight against superstition and prejudice was just as exacting as the struggle against more tangible problems. Apart from his profession Dr. Galbraith had a wide range of interests, and was a scholar in the true sense of the word. He was recognized as one of the foremost authorities on Celtic culture in the country. His prolific writings included monographs on sculptured stones, Highland music, and clan history. In 1938 he was elected a chieftain of the Gaelic Society of Inverness, and in 1939 was made its chief. He was a staunch supporter of youth, and at the time of his death he was president of both the Ross-Sutherland Rugby F.C. and the Ross County Cricket Club. Dr. Galbraith commanded great respect for his wide culture, practical knowledge, and enthusiasm for life. He was revered all over the Highlands, and Scotland is the poorer by his death.—R. P.

Dr. WILLIAM GEORGE HARNETT died suddenly at his home at Hadley, Barnet, at the age of 68 on Feb. 9. The son of Dr. W. J. Harnett, he graduated at Dublin in 1905, and after house appointments at Southampton, the Royal Western Ophthalmic Hospital, and the City of London Hospital for Diseases of the Chest he joined his father in practice in Barnet. He served in the R.A.M.C. in the 1914–18 war in France and Salonika, and he was taken prisoner in the spring of 1918. For thirty-eight years he had been the medical superintendent of the Barnet Isolation Hospital, retiring only last month when the hospital became a maternity unit. For thirty years he had been the divisional surgeon to the Metropolitan Police at Barnet, an office which his father had held for the previous twenty-six years. Dr. Harnett had been for several years chairman of the medical staff of the Victoria Hospital, Barnet, and he served on the general committee of the same hospital. He gave many years of service as secretary of the local medical and panel committee for Hertfordshire. He had been a justice of the peace for Hertfordshire and Middlesex for the last three years. The Barnet Division of the B.M.A. had elected him chairman on more than one occasion, and he was a past-president of the Hertfordshire Branch of the B.M.A. During the recent war Dr. Harnett was deputy chairman of a recruiting board and chairman of the Barnet Local Medical War Committee. He had also been a member of the former Hertfordshire Public Assistance Committee and vice-chairman of the board of governors of the Queen Elizabeth's School. In all his activities he gave great service to the public and his colleagues. He had a keen sense of humour and a ready wit, and he was a good after-dinner speaker. He is survived by his widow and one daughter, to both of whom the sympathy of his fellow practitioners will be extended.—N. G. T.

Dr. A. F. Perigal writes: The sudden death of my brother-in-law, George Harnett, the oldest practitioner in Barnet, removes an outstanding personality who will be greatly missed, for though aware of his disability he was ever plucky and cheerful and never allowed it to encroach upon his strict sense of duty. I shall always have pleasant memories of his able and ready help in years gone by when in practice in New Barnet. He was a very genial and good fellow.

Dr. LEANDER JOSEPH JOHN ORPEN died at his home at Alice, Cape Province, South Africa, on Feb. 12, at the age of 72, after a long illness. Born in South Africa, he was educated at Cheltenham and at Keble College, Oxford. He graduated B.M., B.Ch. from Guy's Hospital in 1906, and he took the D.P.H. in 1920. Most of his working life was spent in the Southern Rhodesia Medical Service, and he finally became director of the Pasteur Institute and the public health laboratory at Salisbury. Dr. Orpen was a man of untiring energy, and the present efficiency of the services he directed in Rhodesia is largely due to his work. He made many contributions to the understanding of the aetiology of the dysenteries, and was the first to recognize the presence of the brucelloses in Rhodesia. He retired to East London in 1932, but on the outbreak of war he took over the training of medical aides at the South African Native College at Fort Hare. It was due to his foresight and hard work that the present degree of B.Sc.(Hygiene) of the University of South Africa was created to meet the increasing demands for trained African personnel. He retired from active work only last year and was not spared long to enjoy his rest. Dr. Orpen will be remembered by all who came in contact with him for his keen mind and for the high standards he demanded both in his own work and in that of his subordinates and students. Always kindly and approachable, he had no lack of friends, either among his colleagues or among the Africans, to whose welfare he devoted so much of his life.—W. N. T.

Dr. Alexander McConnell Erskine, who was in general practice and also medical officer of health for Goole for forty-four years, graduated not at Belfast, as stated in our notice (Feb. 26, p. 370), but at Dublin. He was a student at the then unchartered Queen's College, Belfast, and subsequently he took the London D.P.H.

The Services

Surgeon Rear-Admiral K. A. I. MacKenzie and Surgeon Captain C. N. Ratcliffe, R.N., have been appointed Honorary Physicians to the King in succession to Surgeon Rear-Admiral Sir Henry E. Y. White, K.C.V.O., O.B.E., and Surgeon Vice-Admiral Sir Henry St. C. Colson, K.C.B., C.B.E., R.N., respectively, who have been placed on the Retired List.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

H. W. A. Baron has been approved at the examination for the M.Chir. degree.

UNIVERSITY OF LONDON

Professor J. D. Boyd, M.D., has been appointed a representative of the University on the governing body of St. George's Hospital.

The recognition of the British Postgraduate Medical Federation as a school of the University has been extended in respect of its facilities at the Institute of Laryngology and Otology for a period of five years in the first instance, from Oct. 1, 1948.

The following have been recognized as teachers of the University in the subjects indicated in parentheses: *Royal Free Hospital School of Medicine:* Dr. Doris Manning-Baker and Dr. Alice M. C. Macpherson (Medicine); Mrs. Muriel E. Sacks (née Landau), F.R.C.S. (Surgery); Miss Beatrice E. Turner, F.R.C.S. (Obstetrics and Gynaecology).

Leicester Royal Infirmary and the North Staffordshire Royal Infirmary, Stoke-on-Trent, have been recognized for the purposes of the Diploma in Clinical Pathology for external students for a period of five years, from September, 1948.

The 1948 Paul Philip Reitlinger Prize of the value of £30 has been awarded to Dr. Sheila Mary Chitty (née Howarth) for her essay on circulatory effects of acute changes in the venous filling pressure of the heart.

The following candidates have been approved at the examination indicated:

ACADEMIC POSTGRADUATE DIPLOMA IN MEDICAL RADIOLOGY (DIAGNOSIS): *Part I.*—N. N. Blaxland, D. J. Chapman, H. Clain, D. Cockcroft, W. E. Craddock, MacK. M. Craig, F. M. Cryer, D. A. N. Drury, I. O. Faiman, F. E. Fraser, K. E. Hodge, F. H. Howarth, K. S. Huque, A. W. R. Jenkins, R. P. C. MacDonald, E. V. M. Medill, D. F. Reynolds, M. G. Scott, W. H. Smith, R. F. Stubbs, W. R. R. Thursfield, C. D. Wilson-Sharp.

UNIVERSITY OF SHEFFIELD

At a meeting of the University Council held on Feb. 18, with D. Edward Bramley, Pro-chancellor, in the chair, the following appointments were made: *Senior Lecturer in Physiology*, Q. H. Gibson, M.D., Ph.D. *Honorary Lecturer in Child Health*, R. R. Gordon, M.D., M.R.C.P., D.C.H., D.R.C.O.G. *Assistant Medical Officer to the Student Health Service of the University and to the Nursing Staff Health Service of the United Sheffield Hospitals*, H. R. Worth, M.B., Ch.B.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At a meeting of the Royal Faculty of Physicians and Surgeons of Glasgow held on Jan. 10, with Dr. W. R. Snodgrass, President, in the chair, M. B. Schwartz, M.B., was admitted a Fellow of Faculty *qua* Physician, and W. W. Frank, L.R.C.P.&S.Ed., was admitted a Fellow of Faculty *qua* Surgeon.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a meeting of the Council of the College held on Jan. 29, with the President, Sir William Gilliatt, in the chair, Sir Henry Dale, O.M., G.B.E., F.R.C.P., F.R.S., and Professor J. Heyman, of Stockholm, were elected to the Honorary Fellowship.

The following candidates were elected to the Membership of the College:

G. McG. Barr, A. C. Barthels, D. W. Bentinck, B. Bhattacharya, D. K. Black, Kathleen M. Bower, G. C. Brentnall, Muriel Brighton, C. H. Brown, D. P. Cocks, H. J. A. Conte-Mendoza, E. Cope, F. A. L. da Cunha, F. B. Davidson, J. Dei, F. Denny, N. S. Devi, C. J. Dewhurst, Kathleen A. D. Drury, J. G. Dumoulin, J. M. Duncan, L. T. El-Badri, B. H. Ellis, H. R. England, I. B. Faris, B. J. Frankenberg, J. S. Fraser, W. K. Frewen, G. B. Gibson, L. S. Glass, Cecily Greig, E. I. Holloway, C. G. Irwin, W. H. Laird, R. G. Law, L. E. Lotimer, R. L. Lunt, J. C. McCarroll, J. A. McGhie, J. F. McInerney, R. M. McIntosh, I. D. Macintyre, A. A. McKirdy, A. T. McNeil, J. H. Malony, S. M. Medine, G. Mitchell, J. E. E. Morgan, N. F. Morris, C. Mukherjee, N. Noble, E. I. Ostry, A. F. Pearson, H. E. Pellew, D. A. Ranasinghe, B. C. M. Reed, W. A. Robson, E. S. Rogers, J. K. Russell, C. R. Sluming, D. F. Smith, Z. H. Y. Sobani, D. B. Stewart, A. S. Subramani, J. Suchet, Eleanor Tennant, Mary E. Tighe, Mary U. Wilkin, E. O. Williams, E. G. Zacks.

The following candidates from Australia were elected to the Membership of the College:

J. M. Buchanan, S. E. Craig, H. G. Furnell, L. W. Gall, G. T. H. Harris, J. A. Love, H. A. McCredie, H. K. Porter, J. S. Reid, R. B. C. Stevenson, I. M. Sutherland.

The following from New Zealand were awarded the Diploma in Obstetrics:

K. Brasted, A. L. Bryant, F. L. Clark, E. N. S. D'Arcy, E. M. Elder, R. G. Gordon, G. H. Green, R. H. T. Holmden, B. Kahlenberg, M. D. Matich, F. A. E. Neate, K. L. Park, Irene G. Rhodes, H. A. A. Stevely, W. H. C. Teppett.

Medical Notes in Parliament

MILK BILL

Dr. EDITH SUMMERSKILL on Feb. 21 moved the second reading of the Milk (Special Designations) Bill, which had already passed through the House of Lords. She said this Bill would have the effect of reducing the incidence of tuberculosis. The first milk regulations had been introduced under the Milk and Dairies (Amendment) Act in 1922. Further regulations were introduced in 1936, but there had been a setback in 1938 when a Bill for establishing areas in which non-designated milk must be pasteurized before sale could not be carried through. In 1943 the Government had issued a White Paper setting out the measures which they proposed to take to ensure that the milk of the country should be of a high quality. Since that time steady progress had been made in clearing up the dairy herds, and since 1944 the number of attested herds had been doubled. This comprised something like 16% of the cattle in the country, but the eradication of animals infected with tuberculosis would take many years.

Eradication must be gradual, and it followed that considerable quantities of non-designated milk would be produced in the years to come. In the interests of the public it was necessary that this milk should be pasteurized before it was sold. Opinion among responsible medical people and health authorities was strongly in favour of pasteurization. A recent estimate by Professor G. S. Wilson put the number of deaths which could be attributed to milk infected by the tubercle bacillus at about 1,500 annually. Many thousands more were crippled. The proportion of deaths was ten times greater in rural areas, where more milk was drunk raw, than in London. The Cattle Diseases Committee estimated that about 40% of dairy cows in this country would react to the tuberculin test and that about 0.5% of milch cows excreted active tubercle in their milk. There were other diseases which the Ministry was anxious to eradicate, and for these also pasteurization was essential. Contagious abortion and mastitis were common, and probably 20% of the cows were infected with the former. Of these, 2% excreted in their milk organisms which in human beings gave rise to undulant fever. The responsibility of the Government in this matter was even greater by reason of the encouragement given to the drinking of milk in schools and through welfare schemes.

The pasteurization of milk if carried out efficiently under proper conditions destroyed all pathogenic organisms. Provision of increased pasteurization facilities did not mean that the cleaning up of the herds was less urgent. Pasteurization did not make poor milk good, but it made all milk safe. At present some 70% of the milk sold for liquid consumption in this country was subject to heat treatment. Professor Wilson, make salf by pasteurization the 30% of milk in this country said pasteurization had practically no effect on the nutritional value of milk.

Dr. Summerskill explained that the Bill, in areas to be specified by the Minister of Food, limited the retail sale of milk to those classes of milk which were sold under a special designation. The restrictions also applied to the supply of milk under the Welfare Foods (Milk) Scheme and the milk in schools scheme, and to the sale or supply of milk to catering establishments, hotels, restaurants, institutions, and schools.

Designations

The approved specially designated milk would be T.T. (certified) milk, a designation which might be changed to T.T. (farm-bottled), T.T. milk, and accredited milk derived from a single herd. By insisting that accredited milk should come only from one herd it would be possible to trace any infected milk. There would in England and Wales be pasteurized milk and sterilized milk. In Scotland there would be certified milk, T.T. milk, standard milk derived from a single herd, pasteurized milk, and sterilized milk. Descriptions of these milks would be set out in the regulations. They were not included in the Bill because it was easier to change regulations than to bring in an amending Bill. Recognition of accredited milk and standard milk and specially designated milks would be restricted to a period of five years from the commencement of the Act. These milks did not reach the standard of safety now expected, but farmers who produced them should be given a reasonable time to grade up their herds to T.T. standard.

Before making orders applying the restrictions to specified areas the Minister would consult with representative bodies in those areas. The statutory instrument would be laid before Parliament forty days before an order was made. The Minister would have power to suspend an order when, for instance, a pasteurization plant broke down. The policy would in the first place be applied to large urban areas and then extended to rural areas. Before an area was specified a survey would be made of pasteurization facilities available. When they did not suffice for pasteurization of all raw milk sold in the area, producer-retailers of non-designated raw milk would be encouraged to upgrade their milk to T.T. standard or arrange for it to be pasteurized. The first area would probably be specified in a year or eighteen months and the scheme might apply to the country as a whole in five or ten years. The Minister would himself have power to operate heat treatment plant or to arrange for local authorities or other persons to provide plant in any area where facilities were insufficient.

When restrictions imposed by the Bill were in operation revocation of a licence held by a retail distributor in a specified area would mean the closing of his business because he would be unable to sell raw milk. The Bill provided that a warning notice should be given for a first breach of the conditions, and the vendor should be the subject of proceedings only when guilty of a second offence within twelve months.

Mr. HOPKIN MORRIS said the proportion of clean herds in Scotland was about 35%, in Wales about 27%, and in England only about 10%. In Cardiganshire T.T. herds had been brought up to 85%, in Carmarthen to 69%, and in Pembrokeshire to 45%, but the best figure he knew of for an English county was about 27%. He pointed out that under the Bill all milk would have to be bottled where it was treated. Why should the small retailer be able to bottle T.T. milk in safety and yet not be allowed to bottle this other milk?

Mr. SOMERVILLE HASTINGS said the most distressing cases he had seen in a long professional life were those of tuberculous meningitis in children; 50% of such cases were due to the bovine variety of tubercle bacillus and presumably due to drinking milk. Pasteurization could be depended on to give a pure milk supply; 98% of the milk in London was pasteurized, and tubercle bacilli had not been found in it for the last four years.

In Toronto, where milk had been compulsorily pasteurized since 1915, they had not had a single case in ten years of any form of bovine tuberculosis, although 26% of the milk entering that city contained the germs of it. There were other diseases carried by milk. Many epidemics were due to infection of milk by those who handled it. Between 1912 and 1937 there were in Britain 115 epidemics of dysentery, scarlet fever, typhoid, and septic sore throat, involving 14,000 people, which were found to be due to milk. Only by pasteurization could the spread of such diseases through milk be eliminated with certainty. On objections to pasteurization he quoted Professor A. D. Kay, of the National Institute for Research on Dairying, who had written that ordinary controlled commercial pasteurization caused practically no nutritional change in milk.

Mr. STRACHEY, dealing with points made by Dr. HADEN GUEST and others, said that before looking to the question of whether T.T. milk should be pasteurized the Ministry should make safe by pasteurization the 30% of milk in this country which it could not claim to be safe. That was the purpose of the Bill. The effect of pasteurization on milk was known. It reduced the vitamin C content slightly; that was the only ill-effect of pasteurization. The Government was devoting a substantial share of stainless steel, aluminium, and other materials to the provision of extra equipment for the agricultural industry. The point whether those who handled milk should not be medically examined might be considered during the committee stage of the Bill. The Government supported it in principle. Local authorities under the Bill would not have power to enforce cleanliness on farms. Responsibility for important measures of enforcement was granted under the Food and Drugs (Milk and Dairies) Act, 1944. In the autumn of this year responsibility for enforcement of cleanliness on farms would pass from the local authorities to the Ministry of Agriculture. He admitted that the Bill hastened slowly and that five years was a long time in which to tolerate the consequences of the sale of unsafe milk. The Bill at all events made a start with ridding the country of what had been in the nature of a national disgrace.

The Bill was then read a second time.

Foreign Visitors

Asked how he proposed to compensate the State doctors for the services they rendered to foreigners who contributed nothing to the National Health Service, Mr. BEVAN replied on Feb. 17 that separate figures were not available, but the population statistics on which the remuneration of general practitioners was calculated included foreign visitors who had been in the country for 28 days. A doctor attending a foreign visitor received the usual fee for a temporary resident. Figures were not available to show how many foreign visitors had received attention under the National Health Service.

Amending Bill This Session

Mr. GEORGE JEGER asked Mr. Bevan on Feb. 17 whether he could now give any indication when he intended introducing legislation to implement the findings of the Slade Committee on medical partnerships.

Mr. BEVAN said that legislation would be introduced this session.

Remuneration of Consultants

On Feb. 17 Dr. BARNETT STROSS asked when Mr. Bevan would be able to submit his proposals on the terms and conditions of service of hospital staffs; whether he knew that the delay caused hardship to ex-Service full-time consultants, whose remuneration was well below that of many other consultants who were employed part-time on a sessional basis; and whether, while discussions took place, he would consider making a retrospective payment of an interim nature.

Mr. BEVAN could not say when the proposals would be available for publication. He was doing all he could to complete discussions with the profession's representatives. Meanwhile he could not contemplate any additional retrospective payment.

Deaths from Smallpox.—Asked how many deaths from smallpox occurred in England and Wales in 1947 and 1948, and what were the ages, Mr. BEVAN furnished on Feb. 17 these particulars: 15 in 1947 and none in 1948; the ages were—7, 27, 49, 69, 70 (2), 72, 75 (3), 76, 78, 79 (2), and 86.

EPIDEMIOLOGICAL NOTES

Influenza

The number of deaths in the great towns in the week ended Feb. 19 was 158, compared with 94 in the previous week; 87 of these deaths were in London and the south-east. The majority of the deaths (135) occurred in persons over 55, so that there is no sign of any relative increase in the number of deaths in young people. There has been some increase in incidence in London and the south-east, but, generally speaking, the disease seems to be of a mild type.

Discussion of Table

In *England and Wales* there were increases in the notifications of measles 4,641, acute pneumonia 123, scarlet fever 45, and diphtheria 32. There was a decrease in the incidence of whooping-cough 157.

For the third consecutive week there has been a large increase in the notifications of measles. During the week under review the largest rises were: Staffordshire 548, Middlesex 415, Essex 398, Lancashire 373, Southampton 341, Yorkshire West Riding 321, London 313, Glamorganshire 250, Cheshire 217, Warwickshire 141, Somerset 138, Kent 132, Hertfordshire 119, and Leicestershire 102. The only important exception to this increasing trend of measles was a decrease of 70 in Gloucestershire.

The rise in the incidence of diphtheria was due to the experience of Lancashire, where the cases rose from 19 to 35; of these 35 cases 17 were notified in Liverpool C.B. The largest decreases in the notifications of whooping-cough were Yorkshire West Riding 37, London 36, and Lancashire 31.

The chief centres of dysentery were Lancashire 23 (Blackburn C.B. 7 and Liverpool C.B. 7) and London 16 (Islington 8). Two cases of acute poliomyelitis were notified in London, Wiltshire, and Warwickshire.

In *Scotland* there were increases in the notifications of scarlet fever 35 and whooping-cough 54 and decreases in the incidence of acute primary pneumonia 35 and measles 31. A fall of 69 in the notifications of acute primary pneumonia occurred in the western area, but in the combined north-eastern and eastern area a rise of 32 was reported.

In *Eire* infectious diseases were more prevalent during the week, and increases were reported in the incidence of whooping-cough 30, measles 23, primary pneumonia 15, and scarlet fever 8; the only decrease was in the notifications of diarrhoea and enteritis 21. These changes were mainly due to the experience of Dublin C.B.

In *Northern Ireland* decreases were recorded in the notifications of measles 34, scarlet fever 13, and whooping-cough 13.

Week Ending February 19

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,333, whooping-cough 3,027, diphtheria 112, measles 19,502, acute pneumonia 1,469, cerebrospinal fever 37, acute poliomyelitis 19, dysentery 104, paratyphoid 9, and typhoid 3.

No. 6

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Feb. 12.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949					1948 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	30	2	17	3	1	54	5	21	2	—
Deaths		—	—				3	—		
Diphtheria	148	16	32	8	4	211	14	53	17	8
Deaths	2	—	—	—	—	4	—	—	—	—
Dysentery	68	16	19	—	2	164	25	46	—	—
Deaths				—	—				1	—
Encephalitis lethargica, acute	—	—	2	—	1	1	—	—	—	—
Deaths		—					—			
Erysipelas			29	14	6			51	6	1
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				27					24	
Deaths	43	5	10	3	—	46	5	9	9	2
Measles*	18,441	809	111	123	144	6,179	649	802	107	18
Deaths†			—	1	—			2	1	—
Ophthalmia neonatorum	41	6	12	—	—	45	4	19	—	1
Deaths										
Paratyphoid fever	5	—	—	—	—	2	—	1 (B)	—	—
Deaths	—	—	—	—	—	1	—	—	—	—
Pneumonia, influenzal	1,139	78	46	18	21	871	40	15	3	4
Deaths (from influenza)‡	94	11	24	—	—	16	—	3	—	—
Pneumonia, primary			391	48				228	25	
Deaths	394	98		14	11	268	40		18	1
Polio-encephalitis, acute	3	—				4	—			
Deaths										
Poliomyelitis, acute	15	2	1	1	—	28	3	3	—	1
Deaths§	1	—				3	—			
Puerperal fever		—	4				—	10		1
Deaths										
Puerperal pyrexia‖	93	4	6	—	2	104	13	8	1	—
Deaths		—					1			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,417	104	268	121	37	1,925	150	328	32	46
Deaths†			—	—	—			—	—	
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths			—	—					—	—
Typhoid fever		7	—	—	—		7	2	—	11
Deaths	—	—	—	—	—	—	—	—		1
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	3,011	212	239	87	71	2,576	193	50	19	—
Deaths	10	—	1	1	1	10	2	—	1	—
Deaths (0–1 year)	341	39	47	27	22	362	49	53	43	1
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	6,926	1247	852	239	163	4,954	749	643	234	14
Annual death rate (per 1,000 persons living)			17·1	14·8				13·0	14·6	
Live births	7,612	1264	936	403	249	8,193	1382	952	443	24
Annual rate per 1,000 persons living			18·8	25·0				19·2	27·7	
Stillbirths	203	26	32			236	32	28		
Rate per 1,000 total births (including stillborn)			33					29		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales, Eire, and Northern Ireland.

Medical News

Rations and Allowances for Diabetics

The Ministry of Food states that, in lieu of their sugar ration and the ordinary allowance of cheese, sufferers from diabetes mellitus should receive: Meat: two extra rations a week; cheese: 12 oz. (340 g.) a week; fats: 12 oz. extra butter/margarine, which can be taken up with the ordinary rations (*a*) in odd-numbered ration weeks —12 oz. butter, 8 oz. (226 g.) margarine; (*b*) in even-numbered ration weeks—6 oz. (170 kg.) butter, 12 oz. margarine. The amount of cooking fat available to diabetics is equal to that available to the ordinary consumer. Milk (if prescribed): 7 pints (4 litres) a week.

Order of St. John

The following promotions in, and appointments to, the Venerable Order of the Hospital of St. John of Jerusalem have been announced: *As Commander (Brother)*, Lieutenant-General Neil Cantlie, C.B., M.C., F.R.C.S. *As Officers (Brothers)*, Drs. W. E. Rutledge and N. S. B. Vinter. *As Associate Serving Brothers*, Drs. M. N. Oster, J. V. Reuben, J. M. Raphael, and J. Cohen, T.D.

Garaging of Cars at B.M.A. House

The large basement garage under the North Wing is now available for the parking of cars between the hours of 9 a.m. and 6 p.m., and 9 a.m. and 1 p.m. on Saturdays. This service is free to members of the Association. The garage is under the management of Messrs. G. J. Shaffer, who have installed equipment, which includes greasing and oiling bays, to enable them to provide a valeting service for members' cars at approved charges. Petrol can be obtained in the garage yard. A representative of Messrs. Shaffer will attend at their office on the ground floor, Tavistosk House South (opposite the B.M.A. Inquiry Room), to assist and advise members. Cars will approach the garage through the main entrance in Tavistock Square and leave by the exit in Burton Street. The centre courtyard at B.M.A. House will be closed to all motor traffic.

Sir Henry Newland Resigns

Sir Henry Newland has announced his resignation as Federal President of the British Medical Association in Australia, reports *The Times* of Feb. 24. He is said to have made the decision when the Federal Government broke off negotiations on the free medicine plan, and to have denied that his action was in any way due to dissension between himself and the Federal Council.

Rheumatism Scheme

The Leeds Regional Hospital Board states that the proposed scheme for the development of a diagnostic treatment and research centre at Harrogate submitted to the Minister by the Board (*Journal*, Jan. 29, p. 188) is of necessity a long-term project. The development of such a centre is therefore likely to be undertaken in very gradual stages. However, the Minister has approved the first stage, which is the purchase by the Board of the White Hart Hotel for £27,500. It is proposed to use accommodation acquired in this way for ambulant patients not needing complete or highly specialized nursing care and attention.

Payment of Sickness Benefit

The Ministry of National Insurance states that payment of sickness benefit may be delayed or lost if people who are sick fail to notify the local National Insurance Office of their incapacity within three days. If for any reason a medical certificate cannot be obtained within the first three days of sickness, a note giving the full name, address, and National Insurance number should be sent by the claimant or, if he cannot send it, by someone on his behalf to the local National Insurance Office informing them of the incapacity. This should be followed up by the first medical certificate as soon as possible and in any case within ten days.

Medical Films

The Swedish Embassy has lent the 16-mm. film, "Morning of Life," to the Tavistock Clinic. It deals with the emerging faculties of the infant. The film is silent, runs for about 25 minutes, and has easily understandable Swedish subtitles (a translation is being prepared). It is available, for non-commercial showing only, to medical organizations. Particulars may be obtained from the Tavistock Clinic, 2, Beaumont Street, London, W.1. The Danish Embassy has available a 16-mm. copy of Dr. Jarl Wagner Smitt's film, "Determination of Intelligence on Rats by Means of the Maze Method." It is a 17-minute silent film with subtitles in English.

COMING EVENTS

Family Planning Association

The Family Planning Association has arranged a medical conference to be held at Guthrie House, 3, Cadogan Gate, Sloane Street, London, S.W., on Saturday, March 12, at 10.30 a.m.

Mental Health Conference

The National Association for Mental Health will hold a Conference on Mental Health at Seymour Hall, Seymour Place, London, W.1, on March 17–18. Sir Wilson Jameson will give the introductory address; medical men taking part include Professor D. R. MacCalman and Professor J. C. Spence. Information may be obtained from the Conference Secretary, 39, Queen Anne Street, London, W.1.

Association of Army Psychiatrists

The sixth reunion of Army psychiatrists will take place at Slater's Restaurant, 18–24, Kensington High Street, London, W., on Saturday, March 19, from 7.30 p.m. to 10.30 p.m. Particulars may be obtained from the honorary secretary, Dr. J. C. Penton, The Old Farm House, 1, Gatehill Road, Northwood, Middlesex.

Congress of Climatology

The first Congrès International de Climatisme Social will be held at Villard-de-Lans on March 25–27 under the presidency of Professor Debré. Particulars may be obtained from the secretary, Dr. Terrel, Villard-de-Lans, Isère, France. The town has been chosen on account of its unusual climatic qualities and the comparative freedom from tuberculosis there. The chief work of the congress will be to discuss social climatology in France and other countries. It will be in five parts: (1) Reports on general climatic, clinical, and social aspects of medicine will be given by Professors Delore, Bert, Rohmer, and Caussade, and others. (2) The problems of social climatology and tuberculosis will be discussed by Professors E. Bernard and Dufourt, and others. (3) Climatology apart from tuberculosis will be discussed by Professors Mouriquand, Jeune, and Chaptal, and others. Professors Justin-Besançon and C. Debray will give a report on climatology in relation to non-tuberculous adults. Professor Merklen and Dr. Aujaleu will speak on organization and hygiene. (4) Schools, camps, and hygiene administration will be discussed. (5) Contributions on climatology in foreign countries; speakers include Dr. Dermod MacCarthy and others. There will also be an exhibition on education and the care of children.

Rheumatic Diseases

A concentrated week-end course on the rheumatic diseases will be held at the Rheumatism Unit, St. Stephen's Hospital (London County Council), Fulham Road, S.W., on March 26 and 27. The inaugural lecture will be given by Professor Bruce Perry, and other lecturers include Dr. Francis Bach, Dr. Grace Batten, Dr. Philip Ellman, Mr. Timbrell-Fisher, Dr. Blake Pritchard, Dr. David Shaw, Dr. A. G. Signy, and Dr. Margaret Snelling.

Bristol Medical Reunion Dinner

The Bristol Medical Reunion Dinner will be held in Bristol on Saturday, April 30. Particulars may be obtained from Dr. Richard Clarke, Harley Lodge, Clifton Down, Clifton, Bristol, 8.

American Society of Medical Technologists

The American Society of Medical Technologists will hold its seventeenth annual convention on June 20–23 at the Hotel Roanoke, in Roanoke, Virginia. Further information may be obtained from Miss Ida L. Reilly, M.T.(A.S.C.P.), Roanoke Hospital Association, Roanoke, Virginia, U.S.A., who is the convention chairman.

APPOINTMENTS

Dr. H. H. Cavendish Fuller has been appointed Chief Medical Officer to the Railway Executive, British Railways.

Dr. Fuller graduated at Edinburgh University in 1912, and proceeded M.D. in 1931. He has had experience of general practice and was medical officer in charge of Malvern College from 1917 to 1930. During that period his appointments included that of medical referee to the Ministry of Pensions in the Malvern area. He was appointed Assistant Chief Medical Officer to the G.W.R. in 1930, and Chief Medical Officer in 1931. In March, 1948, he was appointed Medical Adviser to the Railway Executive.

FULHAM HOSPITAL, St. Dunstan's Road, Hammersmith, W.—*Senior Medical Registrar*, D. Barritt, M.B., B.S., M.R.C.P. *Senior Surgical Registrar*, J. L. Temple, F.R.C.S. *Part-time Senior Registrar* (*Ear, Nose, and Throat*), J. L. Wakelin, M.R.C.S., L.R.C.P. *Part-time Senior Registrar* (*Gynaecological*), S. A. Bond, M.B., Ch.B., M.R.C.O.G. *Junior Medical Registrar*, A. W. N. Oatway, M.B., B.Ch. *Junior Surgical Registrar*, M. L. Graeme, M.B., B.Ch. *Casualty Registrar*, J. A. Vyse, M.B., B.S.

MANDERSON, W. G., M.B., Ch.B., Deputy Resident Physician (Fevers), Ham Green Infectious Disease Hospital and Sanatorium, Bristol.

WATERFALL, W. B., F.R.C.S., Surgeon, Prince of Wales's Hospital, Plymouth.

SOCIETIES AND LECTURES

Monday

HUNTERIAN SOCIETY.—At the Mansion House, London, E.C., March 7, 8.30 p.m. *"Personal Experiences,"* Hunterian Oration by Sir Henecage Ogilvie. (Postponed from Feb. 28.)

INSTITUTE OF LARYNGOLOGY AND OTOLOGY, 330-2, Gray's Inn Road, London, W.C.—March 7, 5.15 p.m. *"Dermatology as it Concerns the Ear, Nose, and Throat,"* by Dr. A. C. Roxburgh.

LONDON: UNIVERSITY COLLEGE.—At Physiology Theatre, Gower Street, London, W.C., March 7, 4.45 p.m. *"Haem Pigments in Nature,"* by Professor C. Rimington.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—March 7, 5 p.m. *"The Anatomy and Physiology of Bone—Part I."* Arnott Demonstration by Dr. F. S. Gorrill.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, London, W.—March 7, 9 p.m. *"Richard Bright, Before and After."* Second Lettsomian Lecture by Dr. Horace Evans.

Tuesday

CHELSEA CLINICAL SOCIETY.—At South Kensington Hotel, 47, Queen's Gate Terrace, London S.W., March 8, 7 for 7.30 p.m. Annual general meeting. Discussion: *"Prefrontal Leucotomy,"* to be opened by Dr. W. McKissock and Dr. D. Curran.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C., March 8, 5 p.m. *"The Dermatophytes,"* by Dr. I. Muende.

INSTITUTE OF LARYNGOLOGY AND OTOLOGY, 330–2, Gray's Inn Road, London, W.C., March 8, 9.30 a.m. *"Non-operative Treatment of Maxillary Sinusitis,"* by Mr. Myles L. Formby.

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Street, London, W.C., March 8, 11 a.m. *"Yaws, Pinta, and Bejel,"* by Dr. J. C. Hawksley.

LONDON: UNIVERSITY COLLEGE.—At Physiology Theatre, Gower Street, London, W.C., March 8, 5.15 p.m. *"Chemoceptor Activity,"* by Dr. A. Schweitzer.

MEDICAL SOCIETY OF LONDON.—At Claridge's Hotel, Brook Street, London, W., March 8, 7.30 for 7.45 p.m. 169th Anniversary Dinner.

Wednesday

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Street, London, W.C., March 9, 11 a.m. *"Clinic Administration,"* by Dr. W. N. Mascall.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—March 9, 5 p.m. *"The Anatomy of the Tongue in its Relation to Surgery."* Arnott Demonstration by Mr. P. H. Mitchiner.

ROYAL SANITARY INSTITUTE.—At 90, Buckingham Palace Road, London, S.W., March 9, 2.30 p.m. London Sessional Meeting. *"The Continuity of the Medical and Social Services in Home and in Hospital."* Discussion to be opened by Drs. W. S. Walton and A. B. Williamson.

SOCIETY OF CHEMICAL INDUSTRY: MICROBIOLOGICAL PANEL OF FOOD GROUP.—At Medical Society of London, 11, Chandos Street, W., March 9, 6.15 p.m. Annual general meeting, 6.30 p.m. *"Microbiological Problems in the Production of Pure Water,"* by Dr. E. Windle Taylor.

SOCIETY OF PUBLIC ANALYSTS.—At Royal Society, Burlington House, Piccadilly, London, W., March 9, 3.30 p.m. Annual general meeting. Address of the Retiring President, Mr. Lewis Eynon, B.Sc., F.R.I.C.

Thursday

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C., March 10, 5 p.m. *"Bullous Eruptions,"* by Dr. L. Forman.

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Street, London, W.C., March 10, 11 a.m. *"Prophylaxis in Venereal Disease,"* by Dr. A. H. Harkness.

LONDON JEWISH HOSPITAL MEDICAL SOCIETY.—At Trocadero Restaurant, Piccadilly Circus, London, W., March 10. Annual Dinner and Dance.

LONDON UNIVERSITY.—At Large Lecture Theatre, St. George's Hospital Medical School, Hyde Park Corner, London, S.W., March 10, 4.30 p.m. Lecture-demonstration: *"Neurology."*

LONDON: UNIVERSITY COLLEGE.—At St. Thomas's Hospital Medical School, London, S.E., March 10, 5 p.m. *"Ionic Exchanee and Electrical Activity in Nerve and Muscle."* Special University Lecture by Dr. A. L. Hodgkin.

ROYAL SOCIETY, Burlington House, London, W.—March 10, 4.30 p.m. *Lecture on the Work of the National Institute for Medical Research,* by Sir Charles Harington, F.R.S.

Friday

LONDON CHEST HOSPITAL, Victoria Park, E.—March 11, 5 p.m. *"General Anaesthesia for Surgery of the Heart,"* by Dr. Parry Brown.

ROYAL MEDICAL SOCIETY, 7, Melbourne Place, Edinburgh.—March 11, 8 p.m. Valedictory address by the Senior President.

ROYAL SANITARY INSTITUTE.—At Municipal Buildings, Southend-on-Sea, March 11, 10.30 a.m. *"The Problems Connected with Houseboats as These Concern a Seaside Resort."* Symposium by Mr. Archibald Glen, Dr. J. Stevenson Logan, Mr. Reginald A. Drake, and Mr. R. K. Wortley.

SOCIETY OF PUBLIC ANALYSTS: PHYSICAL METHODS GROUP.—At Chemistry Lecture Theatre, Imperial College of Science and Technology, Imperial Institute Road, South Kensington, London, S.W., March 11, 5 p.m. 20th Ordinary Meeting. *"Polarographic Analysis."* Papers by P. Welford, B.A., A.Inst.P., J. A. Lewis, and J. G. Waller, B.Sc., A.R.I.C.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—At Miller Hospital, Greenwich High Road, London, S.E., March 11, 8.30 p.m. Address by Dr. W. R. Heddy, H.M. Coroner for S.E. London.

Saturday

SOUTH EAST METROPOLITAN REGIONAL TUBERCULOSIS SOCIETY.—At Queen Mary's Hospital, Sidcup, Kent, March 12, 10.30 a.m. *"B.C.G.,"* by Dr. F. R. G. Heaf.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Brain.—On Feb. 23, 1949, at Chesterfield Nursing Home, Bristol, to Marion, wife of Dr. Russell Brain, of Grantham Road, Kingswood, Bristol, a son.

Curnock.—On Feb. 19, 1949, at Chingford, to Vera (née Bucknell), wife of Dr. G. H. R. Curnock, a second son—Robert Michael.

Hare.—On Feb. 18, 1949, at Seabourne Nursing Home, Bournemouth, to Mary (née Bush), wife of Dr. Dennis M. Hare, a daughter.

Hill.—On Feb. 19, 1949, at Johnstone House, Belfast, to Nancy (née Hinchcliff), wife of William J. C. Hill, M.B., of Portrush, a son.

Ormrod.—On Feb. 23, 1949, to Iris, wife of Peter Ormrod, 61, Callcott Road, N.W., a daughter—Jennifer Anne.

Skempton.—On Feb. 22, 1949, to Leslie, wife of Ivor P. D. Skempton, M.B., B.S., a third son—Keith.

DEATHS

Armstrong.—On Feb. 12, 1949, at Ainthorpe House, Danby, Yorks, Cuthbert Whitfield Armstrong, M.R.C.S., L.R.C.P., aged 63.

Brock.—On Feb. 16, 1949, at Dunn Street House, Westwell, Kent, George Sandison Brock, M.B.E., M.D., F.R.C.P.Ed., F.R.S.Ed., Commander of the Order of the Crown of Italy (1919), of Greenbanks, St. Saviour, Jersey, C.I., aged 90.

Brown.—On Feb. 13, 1949, Bessie Brown, M.D., of 29, Ripon Road, Harrogate, aged 44.

Budd-Budd.—On Feb. 16, 1949, at 15, West Drive, Queen's Park, Brighton, Edward John Budd-Budd, M.R.C.S., L.R.C.P., aged 76.

Chadborn.—On Feb. 18, 1949, at The Limes, Jacob's Post, Burgess Hill, Sussex, Charles Nugent Chadborn, M.R.C.S., L.R.C.P.

Coutts.—On Feb. 13, 1949, at Rusland, Spencer Road, Canford Cliffs, Bournemouth, Francis James Henderson Coutts, C.B., M.D., D.P.H., late Senior Medical Officer, Ministry of Health, aged 83.

Cundell.—On Feb. 18, 1949, at Tadworth, Surrey, Harold Juler Cundell, M.R.C.S., L.R.C.P.

Davies.—On Feb. 20, 1949, at Hi'l End Hospital, St. Albans, Thomas Edward Davies, M.B., Ch.B., late of Oldham Road, Manchester, aged 48.

De Smidt.—On May 19, 1948, at Nairobi, Kenya, Frank Philip Gilbert de Smidt, M.R.C.S., L.R.C.P., D.P.H., aged 58.

Dickson.—On Feb. 15, 1949, at Invermae, South Queensferry, George Alexander Dickson, J.P., M.B., C.M.

Edlin.—On Feb. 23, 1949, at Middlemore House, Levenshulme, Manchester, Herbert Ebenezer Edlin, M.R.C.S., L.R.C.P. aged 86.

Edwards.—On Feb. 23, 1949, Ivor Charles Edwards, M.D., D.P.H., of 11, The Grove, Isleworth, aged 62.

Ensor.—On Feb. 10, 1949, Cecil Arthur Ensor, M.R.C.S., L.R.C.P., late of Tisbury, Wilts, aged 75.

Friend.—Recently, Julius Friend, L.S.A., of Leeds, aged 82.

Garde.—On Feb. 17, 1949, at Ivycliff, Flushing, Falmouth, Walter Henry Ormonde Garde, F.R.C.S.Ed., Surgeon Captain R.N., retired, aged 78.

Gilmore.—On Feb. 19, 1949, at 274, Mauldeth Road West, Chorlton-cum-Hardy, Manchester, Eric St. George Gilmore, M.B., Ch.B., aged 54.

Glashan.—On Feb. 11, 1949, at Dumfriesshire, Alexander Clark Glashan, M.B., Ch.B., of Burnley.

Greene.—On Feb. 18, 1949, Helen M. Greene, M.D.Brux., of Woods Farm, Chobham, Surrey.

Hale-White.—On Feb. 26, 1949, at 24, Warnborough Road, Oxford, Sir William Hale-White, K.B.E., M.D., F.R.C.P., aged 91.

Holmes.—On Feb. 11, 1949, at 2, Staveley Road, Eastbourne, Bernard Willoughby Holmes, M.R.C.S., L.R.C.P.

Jackson.—On Feb. 20, 1949, Robert William Henry Jackson, M.D., D.P.H., Major R.A.M.C., retired, of Highfield, Caernarvon, North Wales, aged 84.

Jerram.—On Jan. 21, 1949, in Rhodesia, Ursula Jerram, M.R.C.S., L.R.C.P., D.C.H.

Johnstone.—On Feb. 22, 1949, at Colinwood, Rhos-on-Sea, Edmund Johnstone, L.S.A., formerly of Clayton, aged 84.

Klein.—On Feb. 21, 1949, Bruno Klein, M.D., D.P.H., of 60, Approach Road, Cliftonville, Margate, aged 57.

Laing.—On Feb. 17, 1949, at Lerwick, Arthur Cecil Laing, M.C., Croix de Guerre, M.B., Ch.B., of Levenwick, Shetland.

McCullagh.—On Feb. 20, 1949, at Queen Elizabeth Hospital, Birmingham, Charles Harold Walker McCullagh, M.D., D.P.H., aged 74.

Moyes.—On Feb. 3, 1949, at Strathmore, Prospect Road, Portstewart, N. Ireland, Alice Elizabeth May Babington Moyes, M.B., Ch.B.Ed., D.P.M., wife of Dr. John M. Moyes.

Orpen.—On Feb. 12, 1949, at Alice, Cape Province, South Africa, Lewis Joseph John Orpen, B.M., B.Ch., D.P.H., aged 72.

Paxon.—On Feb. 17, 1949, at 30, St. George's Road, London, N., George Ernest Paxon, M.R.C.S., L.R.C.P., L.D.S.

Porter.—On Feb. 12, 1949, at 65, Morningside Road, Edinburgh, Frederick Porter, M.B., C.M.Ed.

Rogerson.—On Feb. 10, 1949, in Baltimore, Cuthbert Harry Rogerson, M.D., F.R.C.P., D.P.M., late Medical Director of the Seton Institute, Baltimore.

Ruggier.—On Feb. 8, 1949, at 31, Church Avenue, Paula, Malta, Chev. Joseph Gerald Ruggier, M.D., aged 56.

Somerville.—On Feb. 19, 1949, Edgar Somerville, M.D., F.R.C.S.Ed., of Hartsheath, Newton Abbot, South Devon, formerly of Leek, Staffs, aged 74.

Tobin.—On Feb. 23, 1949, Joseph Richard Tobin, M.R.C.P.I., formerly of South Australia.

Wakefield.—On Feb. 23, 1949, at The Gale, near Keswick, Cumberland, Arthur William Wakefield, M.D., aged 72.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Tuberculosis in Ex-Servicemen

Q.—*Some young men enter the fighting Services apparently fit but come out with pulmonary tuberculosis. Are there any statistics to indicate whether this is "attributable to military service"?*

A.—It is not possible to supply the facts requested; the statistics mentioned are not given in the last report of the Chief Medical Officer of the Ministry of Health for 1939–45. In any event, such figures for the fighting Services could not be compared directly with those for similar age groups in the general population. The men in the Services are selected by a medical examination, often including radiography of the chest, and they have a similar examination on discharge. These are bound to reveal some tuberculous lesions which would remain undiscovered in a civilian.

Cases of tuberculosis discovered during or just after a period of military service can be divided into two categories: (1) Those in which the disease is almost certainly attributable. These are comparatively few and include those with a radiologically clear chest on enlistment who have been subjected to definite strain or privation—such as prisoners of war—or who are known to have been living in close contact with cases of open tuberculosis. (2) Those in which there is doubt. It is always difficult to estimate the age of a tuberculous lesion, and if no *x*-ray film was taken on enlistment (or discharge) it is usually impossible to say that the disease did *not* develop during the period of service. Even if there is no specific cause to which the disease can be attributed the patient can usually plead aggravation by the physical exertion involved in Army life.

The Ministry of Pensions appears to take a lenient view in such cases, and if there is any doubt the patient is usually awarded a pension. As a result some patients whose disease almost certainly developed after discharge from the Services have been given pensions. This generosity has given rise to singular anomalies—for example, a youth conscripted to work in the mines who develops tuberculosis gets no compensation whatever, even though his work has entailed severe physical strain which undoubtedly aggravated the disease.

Angina Pectoris

Q.—*A patient aged 45 suffers from severe precordial pain radiating down the right arm which is precipitated by exercise, by emotional upsets, and even by turning over in bed. The heart appears normal on examination. The pain is eased by glyceryl trinitrate. What is the diagnosis, and can you recommend any treatment?*

A.—The diagnosis is almost certainly angina pectoris, and this is probably due to occlusive coronary atherosclerosis. There are three main lines of treatment for these cases. The first is conservative. This consists in limitation of activity and stress of all kinds, light diet, increased rest, and the intelligent use of trinitroglycerin—as is well known. Secondly, if the patient is incapacitated despite this regimen, methyl or propyl thiouracil may be given in initial doses of 0.2 g. thrice daily in order to reduce the oxygen requirement and hence the work of the heart, and also to diminish the sensitivity of the organism to adrenergic stimuli. Thirdly, if thiouracil fails or is not well tolerated, surgical intervention may be considered, bilateral stellate and upper dorsal ganglionectomy being the operation of choice.

Specialist advice should be sought before embarking on thiouracil therapy and before submitting the patient to sympathectomy. The diagnosis of angina pectoris is by no means always easy, and should be established beyond doubt one way or the other in all cases. By far the best test is to obtain an electrocardiogram immediately after effort of sufficient degree to provoke pain or breathlessness and fatigue. Diagnostic ischaemic depression of the S-T segment in left ventricular leads or their equivalent (usually ventricular lead and standard lead I) is obtained in about 95% of cases. It cannot be too strongly emphasized that in uncomplicated cases of angina pectoris (due to occlusive coronary disease) there are no abnormal physical signs and the resting electrocardiogram is normal.

Antibody Formation

Q.—*Where in the body does the power of immunity reside? If in the blood, does severe or repeated haemorrhage or the frequent donation of blood lessen immunity?*

A.—Recent work indicates that the lymph nodes may be the principal site of antibody formation. Once the antibody-producing cells have been stimulated to yield a particular antibody the power to continue production seems to be handed on to daughter cells and a non-specific stimulus may encourage increased output. Thus, in horses producing diphtheria antitoxin the withdrawal of blood may stimulate the manufacture of antibody. It is therefore unlikely that haemorrhage or frequent donation of blood will interfere with antibody production. The only risk is that the patient may suffer temporarily from a degree of anaemia which may lower resistance to infection. If haemoglobin estimations are made frequently in a regular blood donor any tendency to anaemia will be detected and can usually be corrected by a course of iron.

Death from Curare

Q.—*What would be the immediate effect of a lethal dose of curare given intramuscularly? Would there be any local reaction at the site of puncture, and how long would it be before death occurred? What would be found at necropsy? Could the cause of death, if unsuspected, be established?*

A.—The post-mortem findings in such a case would be those of asphyxia, with no features to distinguish it from asphyxia due to other agents—for example, various other alkaloidal poisons. It is unlikely that there would be any local reaction at the site of injection, and it is very unlikely that the precise cause of death would be established by post-mortem examination if the possibility of curare having been injected was unknown and unsuspected. The effects of a lethal dose would begin to be apparent very soon after the injection, and would consist of a progressive paralysis of the voluntary muscles of the body, starting in the limbs, then affecting the head and neck, and ending with paralysis of the respiratory muscles—intercostal, diaphragmatic, and abdominal. With a large lethal dose death might occur about ten minutes after the injection.

Adiposity

Q.—(*a*) *What advice should be given to a young man who is developing a protruding abdomen? There is a family tendency to obesity, and recently during several months in bed he put on a lot of weight. Is some sort of support advisable, and, if so, which type? What exercises should be recommended?*

(*b*) *Could you advise treatment for an active middle-aged male suffering from adiposity of pituitary distribution, the trunk being the only part of the body affected?*

A.—(*a*) When fat is put on by those with a family tendency to obesity, as in other cases, the abdomen is often the region selected, and the condition is not infrequently accompanied by laxity of the intravertebral ligaments and some lordosis, which increases the prominence of the abdomen. A support is advisable only in the most extreme cases, and several firms make suitable belts; but exercises to increase postural tone, in the first case under the supervision of a physiotherapist, may prove of some help.

(*b*) As indicated in (*a*) above, it is common for the trunk to be the part affected and for the limbs, or their distal parts, to escape the adiposity. There is no known hormone which directly reduces adiposity, and treatment is therefore based on: (1) low-calorie diet; (2) diuretics, such as ammonium chloride and mersalyl, to counteract the water-retention factor; and (3) "dexedrine" (amphetamine sulphate) or digitalis to reduce appetite. Amphetamine is sometimes used as an adjunct to therapy in cases of adiposity, and appears to act centrally (cerebrum or hypothalamus) on the hunger or appetite-control

mechanism. It is effective in man and in dogs in reducing voluntary food intake, and this action is not influenced by extrinsic denervation of the stomach and intestine. Amphetamine also causes an apparent slight increase in metabolism, probably by inducing restlessness, and similarly increases dissipation of energy, but clinical trials indicate that these are not the major factors. The above results were found in dogs—even to the point of complete anorexia—before there was evidence of excitement, mania, atonia, or other signs. No evidence of habit formation was found in normal adipose patients, but in psychopaths addiction and toxic reactions have been recorded. Digitalis is also sometimes used in obesity to decrease appetite, as this drug can produce anorexia, nausea, and vomiting by local action on the gastric mucosa or on the vagal nerve endings. For details of some of the experimental work on amphetamine see Harris, S. C., Ivy, A. C., and Searle, L. M., *J. Amer. med. Ass.*, 1947, **134**, 1468.

Retinal Pigmentation

Q.—*I have recently examined the fundi of an elderly man who has deep conjunctival staining of both eyes due to prolonged local application of silver preparations. Both fundi show heavy deposits of pigment over the whole visible retina, and I should like to know if it is possible for argyrosis to affect the retina, and, if so, whether the condition is unusual. Where in the literature can references be found?*

A.—There are no reports of staining of the fundus in argyrosis from local application of silver nitrate to the conjunctival sac. The cornea may be involved in the staining, but it is unlikely that intraocular lesions would occur. The internal administration of silver nitrate can produce extensive silver staining in skin and mucous membrane, and there is one histological report (Riemer, *Arch. Heilk.*, 1875, **16**, 296, 385) of the deposition of silver in the sheath of the optic nerve in a patient who had been taking silver by mouth over many years. Toxic effects such as retrobulbar neuritis have also been described. They are summarized in *Die Wirkung von Arzneimitteln und Giften auf das Auge*, by L. Lewin and H. Guillery, 2nd ed., vol. ii, p. 746 (Berlin, 1913). There is a more recent account by L. Ramond (*Bull. Acad. Méd., Paris*, 1946, **130**, 275). These observations, however, have no relevance to the point raised in this question. If retinal pigmentation that can be more readily ascribed to established causes of pigmentary changes in the fundus can be excluded in this particular patient the case would be worth following up.

Chemotherapy of Acute Otitis Media

Q.—*Is it advisable to use any of the sulphonamides or penicillin to treat acute otitis media before discharge appears or is induced? Does the early use of these drugs predispose to later deafness?*

A.—In the early stages it seems safe to give sulphonamides or penicillin, but if the drum is red and bulging from infected fluid under tension symptoms may be obscured. In such a case it is wiser to incise the drum first. If spontaneous rupture has occurred, and particularly in cases of recurrent suppuration through a permanent perforation, chemotherapy seems reasonably safe; but dosage must be adequate, and the administration of the drug should be continued for four or five days. Some cases of deafness following sulphonamide treatment have been reported by Simson Hall (*Proc. Roy. Soc. Med.*, 1944, **37**, 749), and were presumed to be due to inadequate dosage.

Abdominal Pregnancy

Q.—*Abdominal pregnancy at 5½ months has now been discovered in a case in which three months earlier a misdiagnosis of appendicitis was made at the time when rupture of an ectopic pregnancy must have occurred. The mother and foetus are normal. How long should the pregnancy be allowed to continue, and are there any special dangers to guard against?*

A.—The general view is that laparotomy should be undertaken as soon as the diagnosis of abdominal pregnancy is made. But operation should be carried out by an expert, for the anatomical relations within the abdomen are likely to be much disturbed and great skill and gentleness are necessary if serious haemorrhage is to be avoided. Haemorrhage from the placental site—which may involve any of the abdominal organs—is, indeed, the great danger, and rare judgment is required to decide how best to deal with the placenta and pregnancy sac. Although occasionally the placenta is so situated that maternal blood vessels leading to it can be easily controlled, usually this is not the case, and it is then best to remove the foetus gently with the least possible disturbance of the sac. The umbilical cord is cut short and the placenta and membranes are left inside the abdomen, the abdomen being closed without drainage.

There may be circumstances—for instance, when it might offer the patient her only chance of a live child—in which delay until the child is viable is justified, but they are rare. This course should be followed only after considering the very serious maternal risk involved, and with the fact in mind that the child frequently becomes misshapen by reason of its faulty attitude and position. The older practice of waiting until the patient has had a spurious labour, the child is dead and the placental vessels have become thrombosed has gone out of favour.

NOTES AND COMMENTS

Leukoplakia and Kraurosis Vulvae.—Dr. ELIZABETH [illegible] (London, W.1) writes: Mr. Stanley Way (Jan. 22, p. 164) criticizes my statement (Jan. 1, p. 42) that cancer in association with the eruption known to gynaecologists as leukoplakia vulvae or leukoplakic vulvitis originates on the inner surfaces of the vulva. The grounds for his criticism are that he has seen cases in which both the inner and outer surfaces were affected. It is always possible that a tumour may extend outwards from the initial site if untreated at an early stage. Reports of surgeons (Morris, 1[illegible] Butlin, 1901) that cancer with leukoplakia vulvae occurs on the mucous surfaces only, not on skin, support my statement, and [illegible] Bell (1934) states precisely that cancer has never been observed on the extragenital lesions. The skin eruption described by Bonney under the title leukoplakic vulvitis is identical with a variety of lichen planus known to dermatologists as lichen sclerosus. This eruption may occur at any site and may affect mucous surfaces also. I have been unable to trace any record of cancer arising on skin affected by this eruption. The excision of skin affected by this eruption as a prophylactic measure against cancer is not therefore warranted, and one cannot but hope that few women have experienced the ordeal advocated by Taussig for this purpose—i.e., that every case of leukoplakic vulvitis should be treated by surgical excision of the entire vulva, including the perineal and peri-anal skin if these are involved.

Mr. Stanley Way raises the question of nomenclature. It may be queried whether the substitution of the term "vulvitis" for "dermatitis of the vulva" is justifiable, since it involves labelling an eruption on the perineal and peri-anal skin, or on any other extragenital surface, as "vulvitis." To speak of a leukoplakic dermatitis of the vulva and adjacent surfaces would convey a definite idea and avoid confusion in terminology. The term leukoplakia as applied to skin lesions other than affections of the mucous or muco-cutaneous surfaces occurs only in gynaecological literature. It is an attractive term and popular, for even scabies and warts have been referred to me with this diagnosis. This term was suggested by Schwimmer in 1877 to distinguish whitish lesions on mucous membrane from skin lesions. It is customarily applied to lesions of this nature inside the mouth or on the muco-cutaneous surface of the [illegible] genital organ. It would, I believe, make for clarity and greater accuracy in diagnosis if gynaecologists would restrict their use of the term to lesions occurring on the internal surfaces of the vulva.

The Human Touch.—This new play, by J. Lee-Thompson and Dudley Leslie, now running at the Savoy Theatre, is based on the discovery of chloroform by Sir James Young Simpson. Though well acted and competently produced, the play itself contains many inaccuracies. Professor James Syme presides over a lunacy board which is convened to certify Dr. Simpson. Simpson, played by Alec Guinness, refers constantly to "chlorry," which is given the full title by Professor Syme when he announces the ruling of the faculty that any practitioner using chloroform will be struck off the *Medical Directory*.

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